

# CHROMOSOME ATLAS

of Flowering Plants

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*and*  
*A. P. Wylie*

SECOND EDITION



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To

NIKOLAI IVANOVICH VAVILOV

1886 - 1942

*President of the Lenin Academy of Agricultural Sciences*

1921 - 1940

*For. Mem. R.S.*

1945



# GYMNOSPERMS



*Welwitschia mirabilis*



# I CYCADACEAE

**CERATUZAMIA**  $x = 8$   
*mexicana*

16 Resende 1937 H Mexico

**STANGERIA**  $x = 8$   
*paradoxa (erlopus)*

16 Sax & B. 1934 H S. Africa

**ZAMIA**  $x = 8, 9$   
*floridana* Coontie  
*media*  
*loddigesii*

16 Sax & B. 1934 H Bah., S. Fla.  
16 " " H W. Indies  
18 Resende & R. 1948 H Mexico

**BOWENIA**  $x = 9$

*serrulata*  
*spectabilis*

18 Sax & B. 1934 H Australia  
18 Resende & R. 1948 H

**DIOON (DION)**  $x = 9$

*edule*  
*spinulosum*

18 Viveiros 1951 N Mexico  
18 Sax & B. 1934 H

**ENCEPHALARTOS**  $x = 9$

*altensteinii* Hottentot B.  
*caffer* Kaffir Bread  
*horridus*  
*latifrons*  
*lehmannii*  
*villosus*

18 Resende 1940 NH S. Africa  
18 Viveiros 1951 NSt "  
18 Resende 1940 H "  
18 " " H ?  
18 Viveiros 1951 H S. Africa  
18 " " H "

**MACROZAMIA**  $x = 9$

*miquellii*  
*moorei*  
*tridentata*

18 Sax & B. 1934 H Australia  
18 " " H  
18 " " H

**CYCAS**  $x = 11, 12$

*circularis* Eenthu  
*rumphii*  
*revoluta*

22 Sax & B. 1934 HNSt S.E. As., E. Ind.  
22 " " H Mal., Austr.  
22 " " HNSt S. Japan  
{ 22, 24 T. Nakamura 1929

**MICROCYNAS**  $x = 13$   
*calocoma* Corcho

26 Sax & B. 1934 H Cuba

## 2 GINGKOACEAE

**GINGKO**  $x = 12$   
*biloba*

24 Lee 1954 H E. China

## 3 TAXACEAE

**TORREYA**  $x = 11$

*macrocarpa*  
*nucifera*

22 Nakajima 1942 W Japan  
22 Hirayoshi 1942 NOW "





**PICEA**  $x = 12$

<i>abies</i>	Norway Spruce	24	Sax & S. 1933	ReW	Europe
		24, 48	L. & L. 1948		
<i>glauca</i>	White S.	24	Sax & S. 1933	W	N. America
<i>mariana (nigra)</i>	Black S.	24	" "	W	"
<i>pungens</i>		24	" "	W	W. N. America
<i>sitchensis</i>	Sitka S.	24	Thomas 1945*	W	" "

**PSEUDOTSUGA**  $x = 13$

<i>taxifolia</i>	Douglas Fir	26	Sax & S. 1933	W	W. N. America
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**SF2: PINOIDEAE**

**PINUS** \*  $x = 12$

<i>canariensis</i>	Canary Is. P.	24	Bowden 1945b	HW	Canary Is.
<i>caribaea</i>	Cuban P.	24	Mehra & K. 1948b	ReW	S.E. U.S.A., C. Amer.
<i>contorta</i>	Shore P.	24	Langiet 1934	W	W: N. Amer.
<i>densiflora</i>	Jap. Red P.	24	Hirayoshi 1942	ReW	Japan
<i>gerardiana</i>	Nepal Nut P.	24	Mehra & K. 1948b	NW	Himalayas
<i>halepensis</i>	Aleppo P.	24	" "	Rc	Medit.
<i>lambertiana</i>	Sugar P.	24	" "	SuW	W: N. Amer.
<i>nigra (laricio)</i>	Corsican P.	24	Sax & S. 1933	ReW	S. Europe
<i>sylvestris</i>	& 17 spp.	24	" "	W	N. Eur., Alps
<i>palustris</i>	Longleaf P.	24	Mathews 1932	OReW	E: N. Amer.
<i>parula</i>		24	Bowden 1945b	—	Mexico
<i>pinaster</i>	Cluster P.	24	Saxton 1909	ReW	Medit.
<i>pinex</i>	Stone P.	24	Lane unp.	ReW	"
<i>radiata</i>	Monterey P.	24	Mehra & K. 1948b	W	S. Calif.
<i>roxburghii</i>	Chir P.	24	Sethi 1928	NReW	Himalayas
<i>wallichiana</i>	Blue P.	24	Mehra & K. 1948b	HSuW	"

**9 CUPRESSACEAE**

**CALLITRIS**  $x = 11$

<i>rhomboidalis</i>		22	Gulline unp.	HReW	Australia
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**CHAMAECYPARIS**  $x = 11$

<i>lawsoniana</i>	L. Cypress	22	Sax & S. 1933	HW	W: N. Amer.
<i>obtusa</i>	Hinoki C.	22	Hirayoshi 1942	HW	Japan
		22 (44)	Kanezawa 1951		

**CUPRESSUS**  $x = 11$

<i>funbris</i>	Mourning Cyp.	22	Mehra & K. 1948b	H	C. China
<i>lusitanica</i>	Cedro do Buçaco	22	Camara & de J. 1946	H	Mexico, Guat.
<i>sempervirens</i>	Medit. C.	22	Mehra & K. 1948b	HPW	S. Eur., S.W. Asia
<i>torulosa</i>	Bhutan C.	22	" "	HW	Himalayas

**LIBOCEDRUS**  $x = 11$

<i>plumosa</i> ( <i>doniana</i> )	Kawaka	22	Lane unp.	HW	New Zealand
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**THUJA**  $x = 11$

<i>occidentalis</i>	Arbor-Vitae, White Cedar	22	Sax & S. 1933	BH	E: N. Amer.
<i>orientalis</i>	Chinese A.-V.	22	" "	H	N. & W. China

# THUJA (cont.)

<i>plicata</i>	West. Red C.	22	Sax & S. 1933	StW	W. N. Amer.
( <i>gigantea</i> )					
<i>standishii</i>	Japanese A.-V.			StW	Japan

# JUNIPERUS

$x = 11$

<i>communis</i>	Juniper	22	Sax & S. 1933	BHSp	N. Temp. Arctic
( <i>sibirica</i> )					
<i>horizontalis</i>	Creeping J.	22	Ross & D. 1949	H	N. America
<i>rigida</i>	Needle J.	22	Sax & S. 1933	H	Jap., Kor., Manch.
<i>sabina</i>	Savin	22-24	Reese 1952a	HMO	Eur., W. Asia
<i>virginiana</i>	Red Cedar	22, 33	Stiff 1951	HORe	N. America
<i>chinensis</i>	Chinese J.	44	Sax & S. 1933	H	Ch., Japan, Mong.

# 10 EPHEDRACEAE

## EPHEDRA $x = 7$

<i>americana (andina)</i>		14	Resende 1937		S. America
<i>equisetina</i>	Mongolian E.	14	Florin 1932	M	C. Asia—N. China
<i>foliata</i>		14	Mehra 1946		S.W. Asia
<i>fragilis (campylopoda)</i>		14	Geitler 1929a		Mediterranean
<i>major (nebrodensis)</i>		14	" "		Medit.—Himal.
<i>gerardiana</i>		14	Mehra 1946		Himal.,
		28	" 1934		S.W. China
<i>ulissima (algerica)</i>		28	" 1946		N. Africa
<i>distachya</i>	Sea Grape	28	Florin 1932	FM	Eur., N. Asia
<i>intermedia</i>		28	Mehra 1946		C. Asia
<i>likiangensis</i>		28	" "		Yun., Szech.
<i>saxatilis</i>		28	" "		China
<i>sinica</i>	Ma-huang	28	Resende 1937	M	

# 11 GNETACEAE

## GNETUM $x = 12$

<i>africanum</i>		c. 24	Pearson 1912		Trop. Africa
		24	Coulter 1908		
<i>gnemon</i>		48	E.K.J. unp.		Malaya

# 12 WELWITSCHIACEAE

## WELWITSCHIA $x = (7)$

<i>bainesii (mirabilis)</i>	f	42	Florin 1932		Trop. S.W. Africa
		42, 84	Fernandes 1936		



# DICOTYLEDONS



## Group I

### MAGNOLIALES

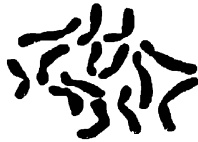
1-7  
ST

### ANNONALES

8-9  
ST

### LAURALES

10-14  
ST



*Annona squamosa*



# I MAGNOLIACEAE

## LIRIODENDRON $x = 19$

<i>chinense</i>		38	Janaki Ammal 1953c	HW	China
<i>tulipifera</i>	Tulip T.	38	Whitaker 1933c	BHSpW	S.E. U.S.A.

## MANGLIETIA $x = 19$

<i>hookeri</i>		38	Janaki Ammal 1953c	H	Yunnan, Burma
<i>insignis</i>		38	" " "	H	E. Himal., China

## MICHELIA $x = 19$

<i>champaca</i>	Champak	38	Janaki Ammal 1953c	HMPW	India—China
<i>compressa</i>		38	" " "	HP	Japan
<i>doltsopa</i>		38	" " "	H	Himalayas
<i>figo (fuscata)</i>	Banana Shrub	38	" " "	H	China
<i>lanuginosa</i>		38	" " "	H	Assam, Yunnan

## PACHYLARNAX $x = 19$

<i>pleiocarpa</i>		38	Janaki Ammal 1953c	H	Assam
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## TALAUMA $x = 19$

<i>hodgsoni</i>		38	Janaki Ammal 1953c	HT	Nepal
<i>phellocarpa</i>		38	" " "	H	Assam

## MAGNOLIA $x = 19$

### 1. Evergreen

<i>delavayi</i>		38	Janaki Ammal 1953c	H	Yunnan
<i>griffithii</i>		38	" " "	H	Assam
<i>hamori</i>		38	" " "	H	Hispaniola
<i>nitida</i>		38	" " "	H	Yun., Tib., Burma
<i>pterocarpa</i>		38	" " "	H	E. Himal., Burma
<i>grandiflora</i>	Bull Bay	114	" " "	HPSp	S.E. U.S.A.
<i>schiedeana</i>		114	" " "	H	Mexico

### 2. Deciduous

<i>ashei</i>		38	" " "	H	Florida
<i>fraseri</i>		38	" " "	H	Alleghenies
<i>macrophylla</i>		38	" " "	H	S.E. U.S.A.
<i>tripetala</i>	Umbrella T.	38	" " "	HW	E. U.S.A.
<i>virginiana</i>	Am. Sweet Bay	38	" " "	H	"
<i>globosa</i>		38	" " "	H	Yunnan, Sikkim
<i>kobus</i>		38	" " "	H	Japan
<i>obovata</i>		38	" " "	HP	"
<i>officinalis</i>		38	" " "	HM	China
<i>rostrata</i>		38	" " "	H	Yunnan
<i>salicifolia</i>		38	" " "	H	Japan
<i>sieboldi</i>		38	" " "	H	Jap.—Manch.
<i>sinensis</i>		38	" " "	H	W. Szechuan
<i>stellata</i>		38	" " "	H	Japan
<i>tsarongensis</i>		38	" " "	H	Tibet
<i>wilsoni</i>		38	" " "	H	W. Szechuan
<i>acuminata</i>	Cucumber T.	76	" " "	HW	S.E. U.S.A.
<i>cordata</i>		76	" " "	H	Georgia
<i>liliflora</i>		76	" " "	HP	Java, China
<i>campbellii</i>		114	" " "	H	E. Himalayas
<i>dawsoniana</i>		114	" " "	H	W. Szechuan
<i>denudata</i>	Yulan	114	" " "	HPSp	China
<i>mollicomata</i>		114	" " "	H	Yunnan

## MAGNOLIA (cont.)

<i>sargentiana</i>	114	Janaki Ammal 1953c	H	Yun., Szechuan
<i>sprengeri</i>	114	„ „ „	H	China
3. Garden Forms				
<i>watsoni</i> ( <i>obovata</i> × <i>sieboldi</i> )	38	„ „ „	H	<i>cult</i>
<i>stellata rubra</i> ( <i>st.</i> × <i>liliiflora</i> )	57	„ „ „	H	„
<i>soulangeri</i> ( <i>denudata</i> × <i>liliiflora</i> )	95	„ „ „	H	„
„ var. <i>lenneana</i>	114		H	„
<i>veitchii</i> ( <i>campbellii</i> × <i>denudata</i> )	114		H	„
<i>raffili</i> ( <i>camp.</i> × <i>molli.</i> )	114		H	„

## 2 WINTERACEAE

### ILICIIUM $x = 7$

<i>anisatum</i>	Chinese A. T.	28	Morinaga <i>et al.</i> 1929	HOSp	E. Asia
( <i>religiosum</i> )					
<i>floridanum</i>	Aniseed T.	28	Whitaker 1933c	HSp	S.E. U.S.A.

### DRIMYS $x = ?$

<i>lanceolata</i>		{ 26	Smith-White unpub.	—	Tasmania
		{ 28	Gulline unpub.		
<i>aromatica</i>	Pepper Tree	38?	EKJ unpub.	HSp	„
<i>winteri</i>	Winter's Bark	c. 76	Whitaker 1933c	HM	S. America

## 3 SCHISANDRACEAE

### SCHISANDRA $x = 7$

<i>chinensis</i>	28	EKJ unpub.	H	N.E. Asia, Japan
<i>sphenanthera</i>	28	Whitaker 1933c	H	C. & W. China

### KADSURA $x = 7$

<i>japonica</i>	28	Whitaker 1933c	H	Japan, Korea
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## 6 TROCHODENDRACEAE

### EUPTELEA $x = 7?$

<i>polyandra</i>	14?	Sugiura 1936b	H	Japan
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### TROCHODENDRON $x = 19$

<i>aralioides</i>	38	Whitaker 1933c	H	Japan, Korea
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## 7 CERCIDIPHYLLACEAE

### CERCIDIPHYLLUM $x = 19$

<i>japonicum</i>	38	Whitaker 1933c	W	Japan
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### TETRACENTRON $x = 19$

<i>sinense</i>	38	Whitaker 1933c	—	China
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## 8 ANNONACEAE

### ANNONA $x = 7$

<i>cherimolia</i>	Cherimoyer	14 Kumar & R. 1941, EKJ*	F	Trop. America
		16? Bowden 1948		
<i>muricata</i>	Sour-sop	14 Kumar & R. 1941, EKJ*	F	
		16? Bowden 1945a		
<i>reticulata</i>	Custard Apple	14 Asana & A. 1945, EKJ*	F	
		16? Bowden 1945a		
<i>squamosa</i>	Sweet-sop	14 Kumar & R. 1941		
		14 Asana & A. 1945	FM	
		16? Bowden 1945a		
		14 (28) Islam 1953		
<i>montana</i>		16? Bowden 1945a	—	Jamaica
<i>glabra</i> ( <i>palustris</i> )	Alligator Pear	28 „ „ , EKJ*	Fs	Trop. America

### CANANGIUM (CANANGA) $x = 8$

<i>odoratum</i>	Ylang Ylang	16 Bowden 1945a	HP	E. Trop. Asia
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### ARTABOTRYS $x = 8, 9$

<i>odoratissimus</i>	Climbing Y.Y.	16 Asana & A. 1945	HMP	Trop. Asia
		18 Bowden 1948, EKJ*		

### ASIMINA\* $x = 9$

<i>obovata</i> and 5 spp.		18 Bowden 1945a, 1948	—	Florida
<i>triloba</i>	Papaw	18, 27 „ 1948	F	S.E. U.S.A.

### POLYALTHIA $x = 9$

<i>longifolia</i>	Asoth	18 Asana & A. 1945	ShW	India
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### SACCOPETALUM $x = 9$

<i>tomentosum</i>		18 Adatia & C. 1951	—	India
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### ROLLINIA $x = ?$

<i>orthopetala?</i>		48 Bowden 1948		Trop. America
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## 9 EUPOMATIACEAE

### EUPOMATIA $x = 10$

<i>bennettii</i>		20 A. T. Hotchkiss unp.	—	E. Australia
<i>laurina</i>		20 „ „	W	

## 11 LAURACEAE

### CINNAMOMUM $x = 12$

<i>camphora</i>	Camphor Tree	24 Sugiura 1936b	MW	Jap., Form., China
<i>japonicum</i>	Khoga T.	24 „ „	O	Japan
( <i>pedunculatum</i> )				
<i>linearifolium</i>	Chinese C.	24 EKJ*	MSp	China

**CINNAMOMUM (cont.)**

<i>loureiri</i>	Tonkin C.	24	Sugiura 1936b	MSp	Jap., Form.
<i>obtusifolium</i>	Tej C.	24	EKJ*	MSp	Himal., Burma
<i>sieboldii (burmanni)</i>		24	Täckholm & S. 1917	MSp	Java, Sum.
<i>zeylanicum</i>	Cinnamon	24	EKJ*	MSpW	S. Ind., Cey., Mal.

**LINDERA (BENZOIN)  $x = 12$** 

<i>benzoin (aestivale)</i>	Spice Bush	24	Jensen 1941b	HMP	N. America
<i>glauca</i>		24	Sugiura 1936b	MPSp	E. Asia
<i>praecox</i>		24	EKI unp.	H	Japan

**PERSEA\*  $x = 12$** 

<i>americana</i>	Avocado Pear	{ 24	Bowden 1940b,	FO	E: N. America,
		24	EKJ*		W. Indies
<i>drymifolia</i>	Mexican A.	24	Krishnaswamy & R. 1949	F	Mexico
<i>palustris (pubescens)</i>	Red Bay	24	Bowden 1945a	F	E: N. America
<i>borbonia</i> & 3 spp.	Swamp Bay	24	Bringhurst 1954	—	S.E: U.S.A.

**UMBELLULARIA  $x = 12$** 

<i>californica</i>	Calif. Bay	24	Bambacioni 1941	HSp	W: N. America
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**LAURUS  $x = 12?$** 

<i>canariensis</i>	Canary Is. L.	36	Bambacioni 1940	H	Canary Is., Azores
<i>nobilis</i>	Sweet Bay	{ 42	Battaglia 1947c	HSp	Mediterranean
		48	EKJ unp.		

**SASSAFRAS  $x = 12$** 

<i>albidum (officinale)</i>		48	Bowden 1940b	MSp	N. America
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**14 MYRISTICACEAE****MYRISTICA  $x = 7?$** 

<i>fragrans</i>	Nutmeg	42	Simmonds 1954	MSp	E. Ind., Ceylon
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## Group II

### RANALES

15-18

H(S)

### BERBERIDALES

19-23

HS

### ARISTOLOCHIALES

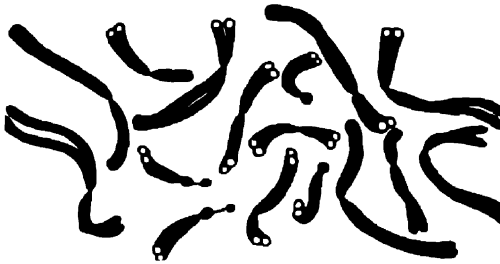
24-27

S

### PIPERALES

28-31

HST



*Clematis vitalba*



# 15 RANUNCULACEAE

## TRIBE I: PAEONIEAE

### PAEONIA $x = 5$

<i>anomala</i>	10	Langlet 1927a	H	C. Asia
<i>broteri</i>	10	Stebbins 1938	H	Portugal
<i>brownii</i>	10	"	H	W: N. America
<i>californica</i>	10	Walters 1952	H	California
<i>cambessedesii</i>	10	Dark 1936	H	Balearics
<i>clusii</i>	10	Barber 1941a	H	Crete
<i>delavayi</i>	10	Dark 1936	H	China
<i>daurica</i>	10	Barber 1941a	H	Crimea, Cauc.
<i>emodi</i>	10	Dark 1936	HM	Himalayas
<i>japonica</i>	10	"	H	Japan
<i>lactiflora (albiflora)</i>	10	"	HMR	N.E. Asia
<i>lutea</i>	10	Stern 1944	H	W. China
<i>mairei</i>	10	La Cour 1952	—	Yunnan
<i>mlokozewitchii</i>	10	Barber 1941a	H	Caucasus
<i>potanini</i>	10	Stern 1944	H	W. China
<i>rhodia</i>	10	" "	H	Rhodes
<i>smouthii</i>	10	Dark 1936	H	<i>cult</i>
<i>suffruticosa</i> Trec Paeony	10	Stebbins 1938	H	China, Tib., Bhut.
<i>tenuifolia</i>	10	" "	H	Transsylv.—Cauc.
<i>veitchii</i>	10	Gregory 1941	H	China
<i>mascula (corallina)</i>	10, 20	Barber 1941a	HM	S. Europe
<i>obovata</i>	10, 20	Sinoto 1938	H	E. Asia
<i>officinalis</i>	{ 10	Dark 1936,	HM	S. Europe
	20	Gregory 1941		
<i>arietina</i>	20	Langlet 1928	H	S.E. Eur., Asia M.
<i>coriacea</i>	20	" 1927a	H	S. Spain, Morocco
<i>humilis</i>	20	Barber 1941a	H	S. Europe
<i>mollis</i>	20	Stern & B. 1945*	H	Siberia
<i>peregrina</i>	20	Dark 1936	H	S. Europe
<i>rusii</i>	20	Barber 1941a	H	W. Med. Is
<i>tenuifolia hybrida</i>	20	Dark 1936	H	<i>cult</i>
<i>wittmanniana (tomentosa)</i>	20	Stebbins 1938	H	N.W. Caucasus

## TRIBE II: HELLEBOREAE

### NIGELLA $x = 6$

<i>arvensis</i> Wild Fennel	12	Gregory 1941	MSp	Eur., S.W. Asia
<i>ciliaris</i>	12	Pereira 1942	—	Syria, Cyprus
<i>damascena</i> Love-in-a-Mist	12	Gregory 1941	HMSp	Medit.
<i>gallica (hispanica)</i>	12	Pereira 1942	H	Spain, N. Africa
<i>garidella (nigellastrum)</i>	12	Gregory 1941	—	Europe
<i>orientalis</i>	12	"	H	Asia Minor
<i>sativa</i> Black Cumin	12	"	HMSp	Medit.
<i>viridis</i>	12	"		

### KOMAROFFIA (NIGELLA) $x = 7$

<i>integrifolia (N. diversifolia)</i>	14	Pereira 1942	M	Turkestan
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### ANEMOPSIS $x = 8$

<i>macrophylla</i>	16	Langlet 1932	H	Japan
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# CIMICIFUGIA $x = 8$

<i>americana</i>	American B.	16	Langlet 1932	H	E: N. America
( <i>cordifolia</i> )					
<i>dahurica</i>		16	" "	H	C. Asia—Japan
<i>foetida</i>	Bugbane	16	Nakajima 1933	HIM	Russia—Japan
<i>japonica</i> ( <i>acerina</i> )		16	Langlet 1932	H	Japan
<i>racemosa</i>	Black Snake Root	16	Gregory 1941	HM	E: N. America

# ERANTHIS $x = 8$

<i>cilicica</i>		16	Langlet 1932	H	Asia M., Syria
<i>hyemalis</i>	Winter Aconite	16	Gregory 1941	HM	S. Europe

# ACONITUM\* $x = 8$

<i>excelsum</i>		16	S. & S. 1938	H	Russia, Siberia
<i>lycoctonum</i>	Wolf Bane	16	Schafer & L.C. 1934	HM	Eur., N. Asia—China
<i>orientale</i>	Caucasian M. and 7 spp.	16	" " "	HM	Cauc.—Persia
<i>septentrionale</i>		16	Langlet 1927a	H	N. Europe
<i>uncinatum</i>	Climbing M.	16	Gregory 1941	H	N. America
<i>variegatum</i>		16	Leszczak 1950	H	E. Alps
<i>paniculatum</i>		16	Schafer & L.C. 1934	H	S. Europe
		32	Langlet 1927a		
<i>stoerkianum</i>		24	Schafer & L.C. 1934	HM	cult
<i>altaicum</i>		32	S. & S. 1938	—	Altai
<i>anglicum</i>		32	Schafer & L.C. 1934	M	Britain
<i>anthora</i>		32	" " "	H	S. Eur. Mts., Cauc.
<i>delavayi</i>		32	Langlet 1927a	H	Yunnan
<i>firmum</i>		32	Skalinska 1950a	H	E. Europe
<i>fischeri</i>	and 4 spp.	32	Sakai 1933	H	Kamchatka
<i>napellus</i>	Monkshood	32	Gregory 1941	HM	N. Temp.
<i>volubile</i>		32	Schafer & L.C. 1934	H	Altai
<i>palmatum</i>	Bikhma	48	" " "	M	Himalayas
<i>wilsonii</i>	Azure M.	64	" " "	HM	E. China
species		96	" " "		

# ACTAEA $x = 8$

<i>alba</i>	White Baneberry	16	Gregory 1941	H	E: N. America
<i>rubra</i>	Red B.	16	Langlet 1932	H	N. America
<i>spicata</i>	Black B.	16	" 1927a	HM	N. Eurasia
		c. 32	Mattick, T. 1950		

# DELPHINIUM\* $x = 8$

<i>ajacis</i>	Rocket Larkspur & 11 spp.	16	Gregory 1941	HM	S. Europe
<i>brachycentrum</i>		16	Langlet 1932	—	Kamchatka
<i>brunonianum</i>	Musk L.	16	Lewitsky 1931b	H	Himalayas
<i>cardinale</i>	Scarlet L.	16 (32)	Mehlquist <i>et al.</i> '43	H	California
<i>cardiopetalum</i>		16	Lewitsky 1931b	H	Medit.
<i>decora</i>	& 16 spp.	16	Lewis <i>et al.</i> 1951	H	California
<i>nudicaule</i>	Orange L.	16	Lawrence 1936	HM	"
<i>speciosum</i>		16	Langlet 1927a	H	Cauc., Persia
<i>tatsiense</i>		16	Lewitsky 1931b	H	Szechuan
<i>zalil</i>	& 2 spp.	16	Propach 1939	DHM	Persia

# DELPHINIUM (cont.)

<i>duhmbergii</i>		{ 16 Propach 1939	—	S. Russia
		{ 32 Gregory 1941	—	California
<i>gypsophilum</i>		16, 32 Lewis <i>et al.</i> 1951	—	"
<i>hanseni</i>		16, 32 " " "	—	"
<i>variegatum</i>	Royal L.	16, 32 " " "	—	"
<i>staphysagria</i>	Stavesacre Seed	{ 16 Hocquette 1922	HIM	Medit.
		{ 32 Lewitsky 1931b		
<i>moerhelmii</i>		24 Lawrence 1936	H	<i>cult</i>
<i>bulleyanum</i>	& 6 spp.	32 Gregory 1941	—	China
<i>oxysepalum</i>		32 Skalinska 1950a	—	E. Europe
<i>ruysii</i>		32 Lawrence 1936	H	<i>cult</i>
<i>belladonna</i>		48 Langlet 1927a	H	"
<i>lamartini</i>		48 Lawrence 1936	H	"
Garden forms	16, 24, 32, 48	Propach 1939	H	

# TROLLIUS $x = 8$

<i>acaulis</i>		16 Langlet 1932	H	Himalayas
<i>albiflorus</i>		16 " "	H	W: U.S.A.
<i>asiaticus</i> (& <i>giganteus</i> )		16 " "	H	N. & E. Asia
<i>europaeus</i>	Globe Flower	16 " "	H	Eur., Cauc.
<i>japonicus</i>		16 Lewitsky 1931b	H	Japan
<i>ranunculinus</i> ( <i>caucasicus</i> )		16 Langlet 1932	H	Cauc., Armenia
<i>yunnanensis</i>		16 Gregory 1941	H	China, Yunnan
<i>laxus</i> ( <i>americanus</i> )		32 Langlet 1932	H	N. America

# CALTHA $x = 8$

<i>cornuta</i>		16 Leoncini 1951	--	S. Europe
<i>lueta</i>		{ 32 " "	H	S.E. Eur.—Himal
		{ 56-64 " " 1952		
<i>palustris</i>	Marsh Marigold	32, 48, 56 S. & S. '38, '41	HM	North Regions
		28 L. & L. 1948		
	32, 48, 53-60 + 0-6B	Reese 1954		
		56-64 Leoncini 1952		
<i>leptocephala</i>		48 Langlet 1932	HM	W: N. America
<i>radicans</i>	48 + 0-2B	L. & L. 1948	H	Scotland
<i>polypetala</i>		64 Langlet 1932	M	Asia M., Persia

# HELLEBORUS\* $x = 8$

<i>abschasicus</i>		32 Gregory 1941	H	Caucasus
<i>foetidus</i>	& 7 spp.	32 Langlet 1927a, 1932	HM	W. & S. Europe
<i>lividus</i>		32 EKJ unp.	H	Balearics

# TRIBE III: THALICTREAE

# ANEMONELLA $x = 7$

<i>thalictroides</i>	Rue Anemone	{ 14 Gregory 1941	H	N. America
		{ 42 Kuhn 1928a		

# ISOPYRUM $x = 7$

<i>fumarioides</i>		14 Gregory 1941	—	Eur., Asia M.
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# KUMLIENIA $x = 7$

<i>hystricula</i>		14 Jakob 1949	—	N.W: N. Amer.
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# THALICTRUM\* $x = 7$

<i>alpinum</i>		14 L. & L. 1944b	H	N. Temp., Arctic
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# THALICTRUM (cont.)

<i>foetidum</i>	14	Langlet 1927a	H	C. Europe
<i>foliosum</i>	14	" "	—	Himalayas
<i>montanum</i>	14	Kuhn 1928a	—	Europe
<i>petaloideum</i>	14	" "	H	N. Asia
<i>yezoense</i>	14	M. & S. 1935	—	Japan
<i>aquilegifolium</i>	14, 28	Langlet 1927a	H	Eur., N. Asia
<i>przewalski</i>	{ 14	Kuhn 1928a	—	China
	{ 70	Langlet 1927a		
<i>diptercarpum</i>	28	Kuhn 1928a	H	W. China
<i>lucidum (angustifolium)</i>	28	" "	H	Europe
<i>speciosissimum (glaucum)</i>	28	" "	H	Spain, Port., N.W. Africa
<i>tuberosum</i> & 5 spp.	28	" "	H	S. W. Europe
<i>fendleri</i>	28, 56, c. 70	Clausen <i>et al.</i> 1940	H	W: N. America
<i>flavum</i> Yellow Meadow Rue	{ 28	Gregory 1941	H	Europe
	{ 84	Kuhn 1928a		
<i>exaltatum (flavum)</i>	28, 35	" "	—	"
<i>dioicum</i>	{ 28	Jensen 1944	H	E: N. America
	{ 42	Kuhn 1928a		
<i>calabricum</i> & 10 spp.	42	" "	H	C. Italy
<i>pauciflorum</i>	42	Langlet 1927a	—	Himalayas
<i>rubellum</i>	42	" "	—	Eur., N. Asia
<i>dasy carpum (purpurascens)</i>	{ 28	Gregory 1941	H	U.S.A.
	{ 42	Langlet 1927a		
<i>minus</i>			H	Eur., N. Afr., Asia
<i>as majus</i>	28	Gregory 1941		
<i>flexuosum</i>	42	Kuhn 1928a		
<i>rariflorum</i>	56, 112	Langlet 1927a		
<i>kemense</i>	70	" "		
<i>simplex</i>	{ 28	Kuhn 1928a	—	Eur., N. Asia
	{ 56	Langlet 1927a		
	{ 70	Kuhn 1928a		
	{ 112	Langlet 1927a		
<i>coriaceum</i>	{ 70	Gregory 1941	—	N. America
	{ 140	Jensen 1944		
<i>polygamum (corynellum)</i>	{ 84	Jensen 1944	H	E: N. America
	{ 154	Gregory 1941		
<i>revolutum</i>	c. 133	" "	—	N. America

## AQUILEGIA\* x = 7

<i>akitensis</i>	14	Sakai 1935	H	Japan
<i>alpina</i> & 9 spp.	14	Gregory 1941	HM	Europe
<i>caerulea</i>	14	Winge 1925	H	W: N. America
<i>flabellata</i>	14	Skalinska 1931	H	Japan
<i>formosa (truncata)</i>	14	" "	H	W: N. America
<i>haylodgensis</i>	14	Langlet 1927a	H	cult
<i>nigricans (vulgaris)</i>	14	Winge 1925	H	Eur., Persia
<i>vulgaris</i> Columbine	14, 28	Pereira 1948	HM	Eur., N. Afr., Temp. Asia
<i>v. olympica</i>	16?	S. & S. 1940	H	S.W. Asia
<i>hirsutissima</i>	28	Gregory 1941	H	cult

TRIBE IV: ANEMONEAE

ANEMONE (PULSATILLA)\*  $x = 7, 8$

$x = 7$

<i>acutiloba</i>		14	Langlet 1932	H	E: N. America
<i>debilis</i>		14	Sakai 1935	—	Siberia
<i>demissa</i>	Drooping A.	14	Langlet 1936	H	Himalayas
<i>flaccida</i>		14	M. & S. 1935	H	Japan, China
<i>narcissiflora</i>		14	Sakai 1934	H	N. Temp.
<i>hepatica</i>		{ 14	Gregory 1941	HM	Eur., Asia, E: N
		28	Langlet 1927a		America

$x = 8$

<i>albana</i>	& 3 spp.	16	Langlet 1932	H	Cauc., Persia
<i>alpina</i>	& 4 spp.	16	Rosenthal 1936	H	S. Eur., Cauc.
<i>altaica</i>	& 3 spp.	16	Guinochet 1935	H	Siberia
<i>apennina</i>		16	Bøcher 1945	H	S. Europe
<i>caroliniana</i>	& 5 spp.	16	Moffett 1932b	H	E: N. America
<i>chrysantha</i>		16	S. & S. 1940	—	Caucasus
<i>cernua</i>		16	M. & S. 1935	H	Japan
<i>coronaria</i>	Poppy A.	16	Guinochet 1935	H	Medit.—C. Asia
<i>japonica</i>	Japanese A. & 4 spp.	16	Gregory 1941	H	China, Japan
<i>riparia</i>		16	Dahl 1937	—	N. America
<i>sieboldii</i>		16	Miduno 1943	—	China
<i>yunnanensis</i>		16	" "	—	"
<i>blanda</i>		16	Langlet 1927a	H	S.W. Asia
<i>v. rosea</i>		32	Moffett 1932b		
<i>fulgens</i>	Scarlet A.	{ 16	" "	H	Medit.
		32	Langlet 1932		
<i>montana</i>		{ 16	Rosenthal 1936	H	S. Eur.—Cauc.,
		24	Guinochet 1935		Manch.
		32, 48	Moffett 1932b		
<i>sylvestris</i>	Snowdrop A.	{ 16	Gajewski 1946	H	Eur.—Turkestan
		32	Gregory 1941		
<i>transsylvanica (angulosa)</i>		{ 28?	Gregory 1941		
		16	" "	H	Roumania
		32	Rosenthal 1936		
<i>decapetala</i>		24	Moffett 1932b	H	N. & S. Amer.
<i>baldensis</i>		{ 24	" "	H	Eur., N. Amer.
		32	Gajewski 1947		
<i>nemorosa</i> Wood A.		{ 24	Guinochet 1935	H	Europe
		30, 37, 45, 46	Bernström 1946		
		32	Moffett 1932b		
<i>janczewskii (multifida × sylvestris)</i>		24, 48 (42-47)	Gajewski 1946	H	cult
<i>armena</i>		32	Langlet 1932	H	Asia Minor
<i>bogenhardiana</i>		32	Zimmerman 1932	—	Europe
<i>halleri</i>		32	Rosenthal 1936	H	C. Europe
<i>magellanica</i>		32	Moffett 1932b	H	S. Chile
<i>multifida</i>		32	" "	H	N. America
<i>palmata</i>		32	Langlet 1932	H	S.W. Europe
<i>pulsatilla</i>	Pasque Flower	32	Gregory 1941	H	Europe
<i>ranunculoides</i>		32	Bernström 1946	H	Eur., W. Asia

(30-33)

# ANEMONE (cont.)

<i>rubra</i> ( <i>pulsatilla</i> )	32	Rosenthal 1936	H	Eur., Siberia
<i>rupicola</i>	32	Moffett 1932b	H	Himalayas
<i>slavica</i>	32	Miduno 1943	—	Europe
<i>trifolia</i>	c. 30, 32	Langlet 1932	H	"

# RANUNCULUS\* $x = 7, 8$

$x = 7$

<i>aduncus</i> ( <i>villarsii</i> ) & 3 spp.	14	Langlet 1936	—	S. Europe
<i>cassius</i>	14	Gregory 1941	—	Asia M., Syria
<i>parviflorus</i>	{ 14	Neves 1944	—	W. Eur., Medit.
	28	Langlet 1927a		
<i>constantinopolitanus</i>	{ 14	" 1936	—	Asia Minor
	42	Larter 1932		
<i>californicus</i>	28	Coonen 1939	—	California
<i>hornemanni</i> & 1 sp.	28	Langlet 1936	—	N. Amer.
<i>rupestris</i> & 3 spp.	28	Larter 1932	—	Spain
<i>tuberosus</i> ( <i>acris</i> )	28	Langlet 1936	—	N. Temp.
<i>acris</i> Meadow	{ 14 + 0-10B	Langlet 1927a	H	N. Temp., S. Afr
Buttercup	28, 56	L. & L. 1948		

$x = 7$  and 8

<i>bulbosus</i>	{ 14	M. & S. 1935	H	Eur., W. Asia
	16	Neves 1944		
<i>chius</i>	{ 14	Larter 1932	H	S. Eur., Asia M.
	16	Gregory 1941		
<i>lanuginosus</i>	{ 14	Langlet 1927a	—	Eur., Caucasus
	28, 32	Mattick, T. 1950		
<i>nelsoni</i>	{ 14	Larter 1932	—	W. N. America
	16	Gregory 1941		
<i>platanifolius</i> ( <i>aconitifolius</i> )	{ 14	Langlet 1927	H	Europe
	16	Skalinska 1950a		
<i>polyanthemus</i>	{ 14	Felföldy 1947a	—	Eur., Caucasus
	16	Reese 1953		

$x = 8$

<i>abchasicus</i> & 1 sp.	16	S. & S. 1940, 1941	—	Caucasus
<i>alpestris</i> & 10 spp.	16	Langlet 1927, '32, '36	H	Eur. Alps
<i>broteri</i> & 3 spp.	16	Larter 1932	H	Spain, Portugal
<i>cassubicifolius</i>	16	Haflinger 1943	—	Europe
<i>circinatus</i>	16	Scheerer 1939	—	Eur., N. Amer.
<i>cymbalaria</i>	16	Böcher & L. 1950	H	N. Temp.
<i>hakkodensis</i> & 2 spp.	16	M. & S. 1935	—	Japan
<i>hederaceus</i> & 2 spp.	16	Böcher 1938b	—	W. & S. Europe
<i>lappaceus</i>	16	Curtis unp.	—	Australia
<i>nemorosus</i>	16	Gregory 1941	—	S. Europe
<i>ophioglossifolius</i> & 5 spp.	16	Neves 1944	—	W. Eur., Medit.
<i>rhomboideus</i>	16	Coonen 1939	—	N. America
<i>asiaticus</i> Turban B.	{ 16	Nakajima 1936	H	S.W. Asia
	32	Larter 1932		
<i>auricomus</i> (Apo.) Goldilocks	{ 16, 32	Böcher 1938b	—	Eur., N. Asia
	32	Haflinger 1943		
<i>breytianus</i> ( <i>nemorosus</i> )	16, 32	Mattick, T. 1950	H	W. Alps
<i>confervoides</i>	{ 16	L. & L. 1948	—	Europe
	32	Böcher & L. 1950		
<i>ficaria</i> Lesser Celandine	{ 16, 24	Neves 1942	HM	Eur., Cauc.
(2x, 3x, 4x, 5x, 6x)	{ 16 + 2B	Larter 1932		
	32	Böcher 1938b		
	c. 40	Maude 1939		

# RANUNCULUS (cont.)

## v. *calthaeifolius*

		48	Rutland 1941		
<i>glacialis</i>		{ 16	Bøcher 1938b	H	Alps & Arctic
		32	L. & L. 1948		
<i>montanus</i>		16, 24, 32	Mattick, T. 1950	H	Europe
<i>repens</i>	Creeping B.	{ 16, 32	M. & S. 1935	H	N. Temp.
		32	Neves 1944		
<i>sardous</i>		{ 16	Langlet 1932		
		18?	Pólya 1948	—	Eur., Asia M., N. Africa
		48	Neves 1944		
<i>alnetorum</i>	& 11 spp.	32	Haflinger 1943	—	Europe
<i>aquatilis</i>	Water Crowfoot	32	Bøcher 1932	H	Temp.
<i>flammula</i>	Lesser Spearwort	32	Neves 1944	—	Eur., Azores
	& 3 spp.				
<i>hyperboreus</i>		32	Bøcher & L. 1950	—	N. & Arctic
<i>lenormandii</i>	& 2 spp.	32	Larter 1932	—	W. Europe
<i>monophyllus</i>		32	S. & S. 1938	—	Altai
<i>monspessulanus</i>	& 2 spp.	32	Coonen 1939	—	Europe
<i>repans</i>	& 2 spp.	32	Bøcher 1938b	—	N. & C. Europe
<i>sceleratus</i>	Blister B.	32	Gregory 1941	M	" "
<i>trachycarpus</i>	& 1 sp.	32	Langlet 1927a	—	S.W. Asia
<i>septentrionalis</i>	Swamp B.	{ 32	Coonen 1939	—	Arctic
		64	Gregory 1941		
<i>falcatus</i>		40	Langlet 1932	—	Eur., Himalayas
<i>pulchellus</i>		40	S. & S. 1938	—	Himal.—Sib.
<i>stricticaulis</i>		40	Haflinger 1943	—	Europe
<i>nivalis</i>		40, 48, 56	L. & L. 1948	HM	N. & Arctic
<i>trilobus</i>		{ 42	Larter 1932	—	Medit.
		48	Gregory 1941		
<i>affinis</i>		48	Bøcher & L. 1950	—	Arctic
<i>allemannii</i>		48	Haflinger 1943	—	Europe
<i>apiifolius</i>		48	Langlet 1932	—	Argentina
<i>dichotomiflorus</i>		48	Neves 1944	—	Spain
<i>muricatus</i>		48	" "	—	Eur., S.W. Asia
<i>sulphureus</i>		{ c. 56	Bøcher 1938b	M	Arctic
		96	L. & L. 1948		
<i>lingua</i>	Great Spearwort	128	Bøcher 1938b	H	Eur., Sib.

## ADONIS x = 8

<i>vernalis</i>	False Hellebore	16	Langlet 1927a	HM	Europe
<i>dahurica</i> (3x)		24	" "	—	N. Asia
<i>autumnalis</i>	Pheasant-eye	32	Gregory 1941	H	S. Eur., S.W. Asia
<i>amurensis</i> (5x)		40	Sugiura 1931	HM	Manch., Japan

## CALLIANTHEMUM x = 8

<i>coriandraefolium</i>		16	Langlet 1932	H	S. Europe
<i>rutifolium</i> ( <i>anemonoides</i> )		32	" "	H	Austria
<i>miyabeianum</i>		32	Sakai 1935	—	Japan

## CLEMATIS\* x = 8

<i>addisonii</i>	& 11 spp.	16	Gregory 1941	H	S.E. U.S.A.
<i>campaniflora</i>	& 8 spp.	16	Meurman & T. 1939	H	Portugal
<i>hilarii</i>		16	Covas & S. 1947	H	Brazil
<i>indivisa</i>		16	Hair 1942	H	New Zealand
<i>integrifolia</i>		16	Meurman & T. 1939	H	S. Europe

<b>JEFFERSONIA</b> $x = 6$					
<i>diphylla</i> ( <i>binata</i> )	12	Langlet 1928	H	E: N. America	
<i>dubia</i>	12	" "	H	E. Asia	
<b>PODOPHYLLUM</b> $x = 6$					
<i>emodi</i> Indian P.	12	Langlet 1928	HM	Himalayas	
<i>leichtlinii</i> ?	12	" "			
<i>peltatum</i> May Apple	12	" "	HM	N. America	
<i>versipelle</i>	12	Darlington 1936a	M	China	
<b>VANCOUVERIA (EPIMEDIUM)</b> $x = 6$					
<i>hexandra</i>	12	Langlet 1928	H	W. N. America	
<b>BONGARDIA</b> $x = 6$					
<i>chrysogonum</i>	14	Tören 1950	H	Syria, Persia	
<b>RANZANIA</b> $x = 7$					
<i>japonica</i>	14	Miyaji 1930	—	Japan	
<b>CAULOPHYLLUM</b> $x = 8$					
<i>robustum</i>	16	M. & S. 1935	H	Manchuria	
<i>thalictroides</i> Blue Cohosh	16	Langlet 1928	H	N. America	
<b>NANDINA</b> $x = 10$					
<i>domestica</i>	20	Sugiura 1936b	H	China, Japan	
<b>MAHONIA</b> $x = 14$					
<i>aquifolium</i> Mahonia	28	Dermen 1931b	BFH	W: N. America	
<i>repens</i>	28		FH		
<b>BERBERIS*</b> $x = 14$					
<i>canadensis</i> American B. & 6 spp.	28	Dermen 1931b		N. America	
<i>candidula</i>	28	Vaarama 1947b	H	W. Hupeh	
<i>cretica</i> Parveritshia	28	Giffin 1936	D	Crete	
<i>darwinii</i> & 14 spp.	28	" "	FH	Chile, Patag.	
<i>gagnepainii</i>	28	Vaarama 1947b	H	W. Hupeh	
<i>julianae</i>	28	" "	H		
<i>sargentiana</i>	28		H		
<i>stenophylla</i>	28		H	<i>cult</i>	
<i>verruculosa</i>	28		H	W. Szechuan	
<i>vulgaris</i> Common B.	28	Langlet 1928	DFHM	Eur., Temp. Asia	
<i>actinacantha</i>	56	Vaarama 1947b	H	Chile	
<i>buxifolia</i> Magellan B.	56		FH	Patagonia	
<i>v. nana</i> ?	?				
<i>integerrima</i>	56	Dermen 1931b	H	Turkestan	
<i>turcomanica</i>	56	Tischler 1928	H	S. Asia Minor	
<b>MAHONIA</b> $\times$ <b>BERBERIS</b>					
<i>M. aquifolium</i> $\times$ <i>B. sargentiana</i>	28	Levan 1944b	H	<i>cult</i>	

## 21 LARDIZABALACEAE

<b>LARDIZABALA</b> $x = (7) 14$					
<i>biserrata</i>	28	Langlet 1928	H	Chile	

<b>AKEBIA</b>	$x = (8)$	16				
<i>quinata</i>			32	Velser 1913	H	China
<i>lobata (trifoliata)</i>			32	Kuwada, T. 1927a	H	Japan
<b>DECAISNEA</b>	$x$	15				
<i>fargesii</i>			30	Simonet & M. 1932	H	China

## 23 MENISPERMACEAE

<b>TINOSPORA</b>	$x = 12, 13?$					
<i>cordifolia</i>			{ 24	Joshi 1934	M	India
			26	Abraham 1942		
<b>COCCULUS</b>	$x = 13, 19?$					
<i>laurifolius</i>			26	Bowden 1945b	H	Himal., E. Asia
<i>pendulus (leaeaba)</i>			26	Hagerup 1932	—	E. Tr. Asia, Trop. Africa
<i>villosus</i>			38	Joshi 1934	M	India, Tr. Africa
<i>trilobus</i>			{ 50	Nakajima 1937	H	Japan, China,
			52	Bowden 1945b		Philippines
<i>carolinus</i>	Car. Moonseed	78		" "	H	E: U.S.A.
<b>MENISPERMUM</b>	$x = 13$					
<i>canadense</i>		52		Lindsay 1930	H	E: N. America
<i>dahuricum</i>		52-54		Langlet 1928	H	N. China

## 24 ARISTOLOCHIACEAE

<b>ARISTOLOCHIA</b>	$x = 6, 7$					
<i>bracteata</i>		12		Venugopalan 1949	—	India
<i>indica</i>		12		" "	M	"
<i>elegans</i>	Calico Flower	14		" "	H	Brazil
<i>clematitis</i>	Birthwort	14		Samuelsson 1914	HM	Eur., Cauc., Asia M.
<i>fimbriata</i>		14		Täckholm & S. 1918	HM	Brazil
<i>macrophylla</i>	Dutchman's Pipe	28		" "	H	E: N. America
	( <i>sipho, durior</i> )					
<b>ASARUM</b>	$x = ?$					
<i>dilatatum</i>	Snakeroot	24		Tanaka 1935	Sp	Japan
<i>as dimidiatum</i>						
<i>europaeum</i>	Asarabacca	{ c. 24		Täckholm & S. 1928	M	Eur., W. Asia
		40		Ehrenberg 1945		
<b>HETEROTROPA (ASARUM)*</b>	$x = 12$					
<i>costata</i>	& 21 spp.	24		Tanaka 1935	H	Japan
<i>serpens</i>		36		" "	H	cult
<i>megacalyx</i>		48		" "	H	Japan

## 25 CYTINACEAE (RAFFLESIIACEAE)

<b>MITRASTEMON</b>	$x = 20$					
<i>kawa-sasakii</i>		40		Watanabe 1935	Par	Japan
<i>yamamotoi</i>		40		" 1934	Par	"

## 28 PIPERACEAE

### PEPEROMIA $x = 8, 11, 12$

<i>sintensis</i>	16	Brown 1908	.	W. Indies
<i>sandersii</i> ( <i>arifolia</i> )	24	Sugiura 1936a	H	Brazil
<i>metallica</i>	24	Abele 1923	—	Peru
<i>pellucida</i>	c. 24	Johnson 1914	HM	E. Indies
<i>resediflora</i>	24	Häuser 1916	—	Peru
<i>verschaffeltii</i>	24	Abele 1923	—	Brazil
<i>maculosa</i>	44	Martinoli 1948	H	Trop. America

### PIPER $x = 12, 14, 16$

<i>chaba</i>	24	EKJ*	DM	India, Malaya
<i>longum</i> Long Pepper	24	Tjio 1948	SpM	" "
<i>subpeltatum</i> ( <i>umbellatum</i> )	24	Johansen 1931b	Sp	S.E. Asia
<i>geniculatum</i>	28	Maugini 1950	—	W. Indies
<i>unguiculatum</i>	28	" "	—	Peru
<i>medium</i>	28	Maugini 1953	—	Mexico
<i>betle</i> Betel	32	Johnson 1910, EKJ*	Sp	India
<i>nigrum</i> Pepper	c. 128	EKJ*	Sp	

## 29 SAURURACEAE

### SAURURUS $x = 11$

<i>cernuus</i> Lizard's Tail	22	Baldwin & S. 1949a	H	E: N. America
<i>chinensis</i> ( <i>loureiri</i> )	22	Suzuka 1950a	H	China Japan

### HOUTTUYNIA $x = ?$ (Apomixis)

<i>cordata</i>	c. 96	Okabe 1934	H	Himalaya—Japan
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## 30 CHLORANTHACEAE

### CHLORANTHUS $x = 15$

<i>glaber</i> Chloranth	30	M. & S. 1935	BHM	Ind., Mal., China
<i>serratus</i>	30	" "	HM	Japan
<i>japonicus</i>	30	" "	M	China Jap.
<i>spicatus</i>	30	Sugiura 1936a	M	Japan

## Group

### RHOEADALES

32, 33

H

### CAPPARIDALES

36–38

HST

### VIOLALES

40, 41

HS

### LOASALES

34, 35

H

### CRUCIALES

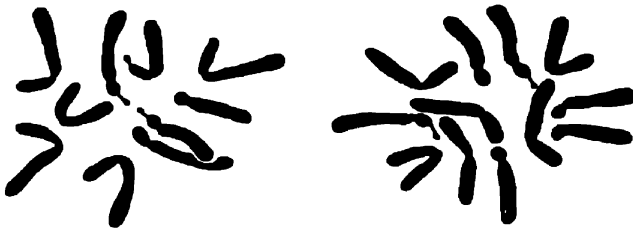
39

H

### POLYGALALES

42–44

HST



*Chelidonium majus*



## 32 PAPAVERACEAE

### CHELIDONIUM $x = 5, 6$

<i>majus</i>	Greater Celandine				
	races: Japan	10	Nagao & M. 1943	HM	Eur., Asia M.
	U.S.A.	12	Bowden 1940a		
	Hungary	12	Felföldy 1947a		
	England	12	Nagao & M. 1943		

### DICRANOSTIGMA (CHELIDONIUM) $x = 6, 8$

<i>franchetiana</i>		{ 12? Sugiura 1940	M	China
		{ 16 Smith, T. 1937		

### GLAUCIUM $x = 6$

<i>corniculatum</i>	Horned P.	12	Sugiura 1936b	H	Eur., Med.
<i>flavum</i> ( <i>seuperi</i> )		12	" "	H	" "

### HYLOMECON (STYLOPHORUM) $x = 6$

<i>japonicum</i>		12	Sugiura 1937b	H	Japan
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### PLATYSTEMON $x = 6$

<i>californicum</i>		12	Sugiura 1937b	H	W: N. Amer.
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### ESCHSCHOLTZIA $x = 6, 7$

<i>caespitosa</i>		12	Smith, T. 1937	H	California
<i>californica</i>	Calif. Poppy	12	Lawrence 1930	H	W: N. Amer.
<i>parishii</i>		12	Lewis & S. 1951	—	California
<i>pulchella</i>		12	Sugiura 1940	H	"
<i>minutiflora</i>		36	Lewis & S. 1951	—	"
<i>glyptosperma</i>		14	" "	—	"

### ROEMERIA $x = 6, 7, 9, 11$

<i>violacea</i>	12	Sugiura 1937b	H	Eur., N. Afr.
<i>rhodifolia</i>	14	" "	—	Persia
<i>refracta</i>	{ 14	" 1940	H	Asia Minor
	{ 18	" 1937b		
<i>speciosa</i>	18	" "	H	"
<i>hybrida</i>	22	" 1940	H	S. Europe

### HYPERCOUM $x = 6, 8?$

<i>procumbens</i>		{ 12 Smith, T. 1937	H	Medit., Arabia
		{ 16? Sugiura 1937b		

### PAPAVER\* $x = 6, 7, 11$

$x = 6$ (7)					
<i>apulum</i>		12	Sugiura 1936a	H	Italy
<i>caucasicum</i>		12	" 1937b	H	Caucasus
<i>pavoninum</i>	Peacock P.	12	" 1936a	H	Afgh., Turkest
<i>atlanticum</i> ( <i>rupifragum</i> )		12, 14	" 1940	H	Morocco
<i>argemone</i>		{ 12	Beale, M. 1939	H	Eur., N. Afr.
		{ 42	Sugiura 1940		
$x = 7$					
<i>alpinum</i> ( <i>burseri</i> )	Alpine P.	14	Fabergé 1944	H	Alps, Arctic
<i>bracteatum</i>	Gr. Scarlet P.	14	Yasui 1936a	H	Med., Pers.
<i>commutatum</i>		14	Philp 1933b	—	Eur., Med.
<i>glaucum</i>	Tulip P. & 12 spp.	14	Sugiura 1931, 1937b, 1940, 1944	H	Syria

# **PAPAVER (cont.)**

<i>lateritum</i>		14	Yasui 1941	H	Armenia
<i>rhoeas</i>	Field Poppy	14	Lawrence 1930	HMSp	Eur., Cauc.
<i>rupifragum</i>		14	Snoad 1952	H	Spain
<i>nudicaule</i>	Iceland P.	{ 14	Fabergé 1944	HMSp	Alps, Arctic
		28	Horn 1938		
		14	Sugiura 1940		
<i>radicatum</i>		{ 42, 56, 70	Fabergé 1944	H	Arctic, Scand.
		70	Horn 1938, L & L '48		
<i>macounii</i>		28	" "	—	N. Amer.
<i>pinnatifidum</i>		28	Sugiura 1940	H	Italy, Sard.
<i>triniaeifolium</i>		28	" "	H	Asia Minor
<i>dubium</i>		{ 28	Ljungdahl 1922	H	Europe
		42	L. & L. 1944b		
<i>orientale</i>	Oriental Poppy	{ 28	Snoad 1952	HMOSp	Persia, Asia M.
		42	R. Yamazaki 1936		
<i>pygmaeum</i>		42	Fabergé 1944	—	N. America
<i>laestadianum</i>		56	Horn 1938	—	Arctic, Scand.
<i>lapponicum</i>		56	" "	—	" "
<i>dahlianum</i>		70	" "	—	" "
<i>relictum</i>		70	" "	—	Alps, Arctic
<i>x = 11</i>					
<i>somniferum</i>	Opium P.	22 (44)	Furusato 1940	HMO	Balk., Pers.
<i>setigerum</i>		{ 22	Sugiura 1940	HMO	" "
		44	Kuzmina 1935		
<b>ARGEMONE</b>	<i>x = 7</i>				
<i>barclayana</i>		28	Sugiura 1940	—	Mexico
<i>grandiflora</i>	Prickly Poppy	56	" "	H	S.W. Mexico
<i>mexicana</i>	Mexican P.	28	" 1936b	HMO	Mexico
<b>DENDROMECON</b>	<i>x = 7</i>				
<i>rhamnoides</i>		56	Lenz 1950	—	California
<b>HUNNEMANNIA</b>	<i>x = 7</i>				
<i>fumariaefolia</i>	Tulip P.	56	Sugiura 1936b	H	Mexico
<b>MECONOPSIS</b>	<i>x = 7, 11</i>				
<i>cambrica</i>	Welsh Poppy	{ 22	Maude 1940	H	W. Europe
		28?	Sugiura 1940		
<i>nepalensis</i>	Satin P.	28	" "	H	Himalayas
<i>robusta</i>		28	" 1944	H	"
<b>PTERIDOPHYLLUM</b>	<i>x = 9</i>				
<i>racemosum</i>		18	Sugiura 1936b	H	Japan
<b>BOCCONIA (MACLEAYA)</b>	<i>x = 10</i>				
<i>frutescens</i>		20	Sugiura 1937b	H	Mex., Peru
<i>microcarpa</i>		20	" "	H	China
<b>MACLEAYA</b>	<i>x = 10 (9?)</i>				
<i>cordata</i>	Plume Poppy	{ 18?	Negodi 1937	H	China, Japan
		20	Sugiura 1937b		
		20	Bowden 1945b		

ROMNEYA  $x = 19$   
*coulteri* Matilija P. 38 Bilquez, D 1951 H California

### 33 FUMARIACEAE

CORYDALIS  $x = 6, 8 \quad x_2 = 14$

<i>cheilanthifolia</i>	12	Negodi 1940	H	China
<i>ophiocarpa</i>	12		H	Himalayas
<i>sibirica</i>	12		H	Siberia, Himal.
<i>sempervirens</i>	Roman	12?		
	Wormwood	16	Bowden 1945a	N. America
		16	Ownbey 1951a	
<i>aurea</i>		16		H
<i>cava</i>		16	Lawrence 1930	Europe
<i>fabacea</i>		16	Hagerup, L. & L. '48	—
<i>intermediu</i>		16	Ryberg 1950	—
<i>micrantha</i>		16	Ownbey 1951a	H
<i>pumila</i>		16	Ryberg 1950	—
<i>laxa</i>		16, 24	" "	—
<i>solida</i>	Fume Wort	16, 32	" "	R
( <i>bulbosa</i> )		24	Maude 1940	
<i>claviculata</i>		32	Reese 1952a	—
<i>vesicaria</i> ( <i>Cisticupnos</i> )		28	Negodi 1940	H
<i>lutea</i>	Yellow Fumitory	28	" "	H
		56?	Kellet, T. 1937	Europe

FUMARIA  $x = 7, 8?$

<i>rostellata</i>	14	Negodi 1951	—	Medit.
<i>micrantha</i>	28	" 1936a	H	W. Eur., Med.— Pers.
<i>muralis</i>	28	" 1951	—	N. & W. Europe
<i>parviflora</i>	28	" 1936a	H	Temp.
<i>spicata</i>	28	" 1951	—	W. Medit.
<i>agraria</i>	56	" 1936a	H	Medit.
<i>capreolata</i>	56	" "	H	Med., C. & W. Eur.
<i>flabellata</i>	56	" 1951	—	S. Italy, Algeria
<i>major</i>	56	" "	—	W. Europe
<i>officinalis</i>	14	Sugiura 1937b		
		Negodi 1951	HM	Europe, Persia
	32	Vaarama 1949		

DICENTRA  $x = 8$

<i>eximia</i>	16	Bowden 1945a	H	E: N. Amer.
<i>pusilla</i>	16	Sakai 1934	H	Japan
<i>spectabilis</i>	16	Negodi 1940	H	E. Asia
<i>formosa</i>	24	Kellet, T. 1937	H	W: N. Amer.

ADLUMIA  $x = (8) 16$

<i>cirrhusa</i>	Allegheny Vine	32	Negodi 1940	H	N. America
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### 35 LOASACEAE

CAIOPHORA (LOASA)  $x = 8$

<i>lateritia</i>	Ch. Nettle	16	Hamel 1938	H	Chile
as <i>L. aurantiaca</i>		24?	Sugiura 1936a		

<b>MENTZELIA (BARTONIA) <math>x = 9, 11, 13</math></b>					
<i>humilis</i>	18	Hamel 1938	—		N. America
<i>albescens</i>	22	Covas & S. 1946	H		Mex.—Argentina
<i>decapetala</i>	22	Hamel 1938	H		S. U.S.A.
<i>lindleyi</i>	{ 26	" "	H		California
	36	Sugiura 1936a	H		
<b>BLUMENBACHIA (LOASA) <math>x = 12</math></b>					
<i>hieronymi</i> Sting Lily	24	Hamel 1938	H		Argentina
<i>insignis</i>	24	" "	H		S. America
<b>LOASA <math>x = 14, 15?</math></b>					
<i>triphylla</i>	28	Hamel 1938	H		Peru
<i>vulcanica</i>	28	Sugiura 1937b	H		Ecuador
<i>ferruginea</i>	{ 28	Hamel 1938	—		Peru
	30	Sugiura 1940	—		
<i>urens (hispid)</i>	30	" 1936a	—		"
<i>erinus</i>	40	" 1940	—		S. America
<b>GRONOVIA <math>x = ?</math></b>					
<i>scandens</i>	67	Hamel 1938	—		S. America

## 36 CAPPARIDACEAE

<b>ATAMISQUEA <math>x = 8</math></b>					
<i>emarginata</i>	16	Covas & S. 1946	—		Chile, Arg.
<b>CAPPARIS <math>x = 9, 10, x_2 = 19</math></b>					
<i>cynophallophora</i>	18	Kuhn 1928b	—		S. America
<i>saligna</i>	30	" "	—		
<i>rothii</i>	40	Hagerup 1932	V		Trop. Afr.
<i>sepriaria</i> Indian Capers	40	Raghavan 1938	V		India
<i>zeylanica</i>	40	Raghavan & V '41a	V		"
<i>spinosa</i> Caper Bush	38	Taylor 1925c	HV		Med.
<i>acutifolia</i>	c. 84	Kuhn 1928b	—		China
<b>CLEOME <math>x = 9, 10, 11, \text{etc.}</math></b>					
<i>violacea</i>	18	Sugiura 1944	—		N. America
<i>viscosa</i>	20	Janaki Ammal 1933	M		O.W. Tropics
<i>spinosa</i> Spider Fl.	{ 20	Ufer 1937	H		S. America
	24	Sugiura 1936a, b	H		
<i>as gigantea</i>	{ 20	Lewitsky 1931a	—		"
	70, 140	Ufer 1927	—		
<i>graveolens</i>	22	Sugiura 1936a, b	—		N. America
<i>monophylla</i>	22	" "	—		India, Trop. Afr.
<i>candelabrum</i>	32	" 1936	H		—
<i>lutea</i>	32	Rollins 1939b	H		N. America
<i>serrulata</i>	32	" "	H		"
<i>paradoxa</i>	32	T. 1922	—		Abyssinia
<i>chelidonii</i>	34	Raghavan & V. 1941a	—		India, Java
<b>MAERUA <math>x = 10</math></b>					
<i>arenaria</i> Earth-Sugar Plant	20	Raghavan & V. 1941a	M		India

POLANISIA (CLEOME) $x = 10$					
<i>trachysperma</i>	20	Raghavan 1938	H	N. America	
CRATAEVA $x = 13$					
<i>adansoni</i>	26	Raghavan & V. 1939a	W	Trop. Afr.	
<i>religiosa</i> Sacred Barna	26	„ „	HMSp	Tropics	
GYNANDROPSIS $x = ?$					
<i>pentaphylla</i> Cat's Whiskers	{ 30	Sugiura 1937b	HOV	Trop. Afr., Asia	
	32	V. S. Rao 1936b			
	34	Raghavan 1938			
DACTYLAENA $x = 16$					
<i>micrantha</i>	32	Sugiura 1936a, b	—	Brazil	
ISOMERIS $x = 17 ?$					
<i>arborea</i>	34?	Billings 1937	H	California	

## 37 MORINGACEAE

<b>MORINGA <math>x = 7</math></b>					
<i>pterygosperma (oleifera)</i>					
Drumstick Tree	28	Patel & N. 1937	VO	N.W. India	

## 39 CRUCIFERAE

### Order of the Tribes with their Basic Numbers

I Lepidieae: 4-12	X Hesperideae: 7, 8, 10, 12, 13
II Stenopetaleae: 5	XI Brassiceae: 7-12
III Drabeae: 5-9	XII Schizopetaleae: 9
IV Sisymbrieae: 5-11	XIII Heliophileae: 10, 11
V Matthioleae: 6, 7, 8	XIV Cremolobeae: 11
VI Alysseae: 6, 7, 8	XV Pringleae: 12
VII Arabideae: 6, 7, 8, 11, 15	XVI Stanleyeae: 12
VIII Lunarieae: 7	XVII Streptantheae: 12
IX Euclidieae: 7, 12	

### TRIBE I: LEPIDIEAE

PHYSARIA $x = 4$					
<i>geyeri</i>	8	Jakowska 1949	H	N.W: U.S.A.	
<i>vitulifera</i>	16	Weber & B. 1950			
HORNUNGIA (HUTCHINSIA) $x = 6$					
<i>petraea</i>	12	Jaretsky 1929	H	Eur., Asia M., N. Africa	
HUTCHINSIA $x = 6$					
<i>procumbens</i>	12, 24	Manton 1932	H	N. Temp.	
AETHIONEMA * $x = 6$					
<i>coridifolium</i> & 4 spp.	24	Manton 1932	H	Asia M., Lebanon	
<i>persicum</i>	36	" "	H	S.W. Asia	
<i>thomasianum</i>	36	" "	H	Aosta	

# **AETHIONEMA (cont.)**

<i>grandiflorum</i> & 5 spp	48	Manton 1932	H	Lebanon
<i>ovalifolium</i>	48	Jaretsky 1932	H	S. Eur., S.W. Asia
<i>cordatum</i>	60	Manton 1932	H	Lebanon

# **COCHLEARIA $x=6, 7, x_1=19$**

<i>officinalis</i> Scurvy Grass	24+0-4B	L. & L. 1948	MSPVit	N. & Arctic Eur.
<i>micacea</i> Scottish S.G.	34-36	Crane & G. 1923	—	Mts., Br. Is., Norway
<i>polonica</i>	36	Skalinska 1950a	—	E. Europe
<i>anglica</i>	{ 48+2B 37-50	L. & L. 1948 Crane & G. 1923	MSP	N.W. Europe
<i>arctica</i>	14	L. & L. 1948	—	North Reg.
<i>oblongifolia</i>	14	M. & S. 1935	V	
<i>scotica</i> (groenlandica)	14	Maude 1939	Sp	Brit. Isles
<i>alpina</i> Mtn. Scurvy Grass	28	Crane & G., 1923	Sp	North Reg.
<i>danica</i> Danish S.G.	42	" "	V	"
<i>tatrae</i>	42	Skalinska 1950a		E. Europe
<i>glastifolia</i>	38	Manton 1932		N.W. Europe

# **BISCUTELLA\* $x=6, 8, 9$**

<i>microcarpa</i> (didyma)	12	Manton 1937		S. Spain
<i>apula</i> & 4 spp.	16			" Algeria
<i>arvernensis</i>	18			Medit.
<i>laevigata</i> 18, 27, 36, 45, 54	54		H	C. & S. Europe
species	81			Spain

# **COLUTEOCARPUS $x=7$**

<i>reticulatus</i>	14	Manton 1932	—	Asia Minor
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# **PETROCALLIS $x=7$**

<i>pyrenaica</i>	14	Favarger 1953		S. Eur. Mtns.
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# **EUNOMIA $x=7$**

<i>oppositifolia</i> Stone Cress	14	Manton 1932	H	Greece
<i>iberidea</i>	28	" "	H	S.W. Asia

# **ISATIS $x=7$**

<i>tinctoria</i> Woad	28	Manton 1932	D	C. & S. Europe
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# **THLASPI\* $x=7$**

<i>arvense</i> Penny Cress & 11 spp.	14	Manton 1932		Eur., N. Asia, N. Africa
<i>cilicicum</i>	14, 28	" "		Asia Minor
<i>montanum</i>	c. 28	" "		Europe
<i>perfoliatum</i>	c. 70	Jaretsky 1932		Eur., N. Africa, Nr. East

# **IBERIS\* $x=7, 8, 11$**

<i>gibraltarica</i> & 5 spp.	14	Manton 1932	H	Spain, Mor.
<i>amara</i> Wild Candytuft	14, 16	Jaretsky 1932	H	W. & S. Eur., N. Africa
<i>umbellata</i> Candytuft	{ 14 16	Manton 1932 P. T. Thomas 1945*	H	S. Europe
<i>jordani</i> & 2 spp.	22	Manton 1932	H	Anatolia
<i>saxatilis</i>	22+2B	" "	H	S.W. Europe
<i>semperflorens</i>	22+0-1B, 44	" "	H	Italy, Sicily
<i>sempervirens</i>	22, 44	Simonet 1932c	H	S. Eur., Asia M.

<b>IBERIS (cont.)</b>					
<i>correaefolia</i>	44	Manton 1932	H	S. Europe	
<i>corifolia</i>	c. 50	" "	H	Spain	
<b>CAPESELLA <math>x = 8</math></b>					
<i>bursa-pastoris</i> Shepherd's Purse	32	Vaarama 1943	—	Cosmop.	
<b>LEPIDIUM* <math>x = 8</math></b>					
<i>armoracium</i> & 5 spp.	16	Manton 1932	V	Abyssinia	
<i>campestre</i> Pepperwort	16	Wulff 1939b	—	Eur., As. M., Cauc	
<i>sativum</i> Common Cress	16	Reese 1950	OV	S.W. Asia	
	32	Vaarama 1951			
<i>vesicarium</i>	16, 32	Manton 1932	—	Cauc., Persia	
<i>latifolium</i> (3x) Dittander	24	Heiser & W. 1948	V	Eur., N. Africa, S.W. Asia	
<i>densiflorum</i> Pepperweed & 3 spp.	32	Manton 1932	—	N. America	
<i>apetalum</i>	32	F. H. Smith 1938	—	"	
<i>cartilagineum</i> (5x)	40	Manton 1932	—	Siberia	
<b>CARDARIA (LEPIDIUM) <math>x = 8</math></b>					
<i>draba</i> Hairy Cress	64	Manton 1932	SpV	E. Med., W. Asia	
<b>CORONOPUS <math>x = 8</math></b>					
<i>didymus</i> Lesser Swine Cress	32	Manton 1932	H	S. America	
<i>squamatus</i> ( <i>procumbens</i> ) Wart Cress	32	" "	—	Eur., Med., Canaries	
<b>BIVONAEA <math>x = 8</math></b>					
<i>saviana</i>	32	Corti 1930b	—	Italy	
<b>TEESDALIA <math>x = 9</math></b>					
<i>nudicaulis</i>	36	Manton 1932	—	Eur., N. Africa	
<b>IONOPSISIDIUM <math>x = 11, 12</math></b>					
<i>prolongoi</i>	22	Chiarugi 1945	—	Spain	
<i>acaule</i> Diamond Fl.	24	Corti 1930b	H	Portugal	

#### TRIBE II: STENOPETALEAE

<b>STENOPETALUM <math>x = 5</math></b>					
<i>lineare</i>	10	Manton 1932	—	Australia	
<i>sphaerocarpum</i>	10	" "			

#### TRIBE III: DRABEAE

<b>LESQUERELLA <math>x = 5, 6, 8, 9</math></b>					
<i>alpina</i>	10	Rollins 1939a	—	W: N. America	
<i>argentea</i> Bladder Pod	10	Manton 1932	H	C: U.S.A.	
<i>montana</i>	10	Rollins 1939a	—	W: N. Amer.	
<i>ludoviciana</i>	10, 30	" "	—	"	
<i>calicicola</i>	c. 20	" "	—	"	
<i>mendoctna</i>	c. 50	Manton 1932	—	Chile	
<i>arctica</i>	60	Bøcher & L. 1950	—	N. & Arctic Amer	
<i>fendleri</i>	12	Rollins 1939a	—	N. Mexico	

# LESQUERELLA (cont.)

<i>gracilis</i>	12	Manton 1932	—	W: N. Amer.
<i>intermedia</i>	16	Rollins 1939a	—	"
<i>grandiflora</i>	18	Manton 1932	—	Texas

# EROPHILA (DRABA) $x = 7$

<i>verna</i>	Whitlow Grass	14, 24, 30, 32, 34, 36, 40, 52, 58, 64	Winge 1940	H	Eur., Asia, N. Afr
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# RHIZOBOTRYA $x = 7$

<i>alpina</i>	14	Chiarugi 1933	—	S. Tyrol
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# DRABA\* $x = 8$

<i>fladnizensis</i>	16	L. & L. 1948	—	N. & Arctic
<i>incana</i>	32	Heilborn 1927	—	"
<i>muralis</i>	c. 32	Reese 1952a	—	Eur., W. Asia, N.W. Africa
<i>crassifolia</i> (5x)	40	Heilborn 1941	—	N. America
<i>rupestris</i> & 2 spp.	48	" "	—	N. & Arctic
<i>aurea</i>	64	Bøcher 1938a	—	"
<i>dahurica</i> ( <i>hirta</i> ) & 2 spp.	64	Heilborn 1941	—	Arctic
<i>sachalinensis</i>	64	R. Yamazaki 1936	—	"
<i>magellanica</i>	48, 64, 80	Heilborn 1927	—	Magellan
<i>arctica</i>	80	Flovik 1940	—	Arctic
<i>alpina</i>	80	Heilborn 1941	—	N. & Arctic
	112	L. & L. 1948	—	"
<i>arabisans</i>	96	F. H. Smith 1938	H	E: N. Amer.

# KERNERA $x = 8$

<i>saxatilis</i>	16	Chiarugi 1933	H	Europe
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# SCHIVERECKIA $x = 8$

<i>doerfleri</i> ( <i>bornmuelleri</i> )	16	Manton 1932	—	S.E. Eur., Asia M
<i>podolica</i>	16	" "	—	E. Europe

# ARMORACIA $x = 8$

<i>rusticana</i> ( <i>lapathifolia</i> )	Horse Radish	32	Manton 1932	SpVit	S.E. Eur., W. Asia
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# LITHODRABA (XERODRABA) $x = 8$

<i>mendocinensis</i>	64	Boelcke 1951	—	Argentina
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## TRIBE IV: SISYMBRIEAE

# ARABIDOPSIS $x = 5?$

<i>italiana</i>	Common Wall Cress	10	Jaretsky 1928a		Eur., Temp. Asia, N. Africa
<i>suecica</i>		c. 28	Manton 1932		N. Europe
<i>pumila</i>		32	" "		S.W. Asia

# DESCURAINIA $x = 7$

<i>pinnata</i>		14, 28, 42	Baldwin & C. 1940	—	E: N. Amer.
<i>richardsonii</i> ( <i>canescens</i> )		14, 28, 42	" "	—	Rocky Mts.
<i>obtus</i>		14, 42	" "	—	S: U.S.A., Mex.
<i>sophia</i>	Flixweed	20	Baez-Major 1934	—	Temp. O.W.
		28, 56	Manton 1932	—	

# EUTREMA $x = 7$

<i>wasabi</i>	28	Sugiura 1936b		E. Sib., Japan
<i>edwardsii</i>	28	Bøcher & L. 1950		Arctic, Urals
	42	S. & S. 1941		

# SISYMBRIUM $x = 7, 8$

<i>altissimum</i>	Tall Rocket	14	F. H. Smith 1938	—	E. Eur., Nr. East
<i>corniculatum</i>		14	Baez-Major 1934	V	Spain
<i>loeselii</i>		14	Jaretsky 1932	—	S.E. Eur., W. Asia
<i>officinale</i>	Hedge Mustard	14	Wulff 1937b	V	Eur., N. Africa,
		14 + 4B	Baez-Major 1934		Near East
<i>irio</i>	London Rocket	14	Jaretsky 1932	—	Medit.
		16	Baez-Major 1932	—	
<i>supinum</i>		42		—	Eur., Medit.
<i>hirsutum</i>		56		V?	Turkestan
<i>dentatum</i>		16	Favarger 1949b	—	Europe

# CAMELINA $x = 7, 20$

<i>sativa</i>	Gold of Pleasure	28	Baez-Major 1934		
		40	Ibarra & P. 1947a	OT	E. Eur., W. Asia
		42	Jaretsky 1928a		
<i>microcarpa</i>		40	Manton 1932	—	C. & S. Europe,
					W. Asia
<i>parodii</i>		40	Ibarra & P. 1947a	—	Argentina
<i>alyssum</i>		40	Manton 1932	—	S. & C. Europe
		42	Jaretsky 1928a		

# BRAYA $x = 8$

<i>alpina</i>		32	Manton 1932		Alps, Arctic, Tibet
<i>linearis</i>		42	Bøcher & L. 1950		Scand., Greenland
		64	L. & L. 1948		
<i>purpurascens</i>		64	" "		Alps, Arctic
<i>humilis</i>		40, 56, 64	Rollins 1953		Alaska—Colo.

# ONURIS $x = 9$

<i>graminifolia</i>		18	Manton 1932	—	Chile
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# ALLIARIA $x = 9?$

<i>petiolata (officinalis)</i>	Garlic Wort	36	Baez-Major 1934		Eur., N. Africa,
					Cauc.—Himal.

# XERODRABA $x = 11$

<i>pycnophylloides</i>		22	Manton 1932	—	Patagonia
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## TRIBE V: MATTHIOLEAE

# MATTHIOLA $x = 6, 7$

<i>odoratissima</i>		12	Manton 1932	H	S. Cauc.
<i>tatarica</i>		12	" "	—	E. Eur., Asia M.
<i>thessala</i>		12	Jaretsky 1929	—	Medit.
<i>tristis</i>		12	" "	H	"
<i>vallesiaca</i>		12	Manton 1932	H	Italy, Greece
<i>bicornis</i>	Evening Stock	14	" "	H	Greece, Asia M.
<i>fenestralis</i>		14	" "	H	Crete
<i>parviflora</i>		14	" "	—	Medit.
<i>sinuata</i>	Sea Stock	14	" "	—	W. Eur. & Medit.

# MATTHIOLA (cont.)

<i>tricuspidata</i>	14	Jaretsky, T. 1937	H	Medit.
<i>incana</i>	Brompton Stock, 14	Straub 1937	H	
	Gilliflower 14+1B	Frost 1931		

# CHORISPORA $x=7$

<i>tenella</i>	14	Manton 1932	H	Cauc., N. China
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# AUBRIETIA $x=8$

<i>columnae</i>	16	Jaretsky 1928a	H	Italy
<i>deltoidea</i>	16	Sakai 1935	H	Balkans, Asia M.
<i>edentula</i>	16	Jaretsky 1928a	—	Kurdistan
<i>libanotica</i>	16		H	Lebanon

# TRIBE VI: ALYSSEAE

# FARSETIA $x=6, 7, 8$

<i>ramosissima</i>	12	Hagerup 1932	—	Trop. Africa
<i>eriocarpa</i>	14, 16	Manton 1932	—	Asia M., Syria
<i>clypeata</i>	16	" "	—	S. Eur., Asia M.

# ALYSSUM\* $x=8$

<i>corymbosum</i>	16	Jaretsky 1928a	H	Balkans
<i>saxatile</i> Golden A. & 13 spp.	16	Manton 1932	H	C. Europe
<i>alyssoides (calycinum)</i> Small Alison	32	" "	—	Eur., W. Asia
<i>pyrenaicum</i>	32	" "	H	Pyrenees
<i>repens</i>	32	" "	H	Eur., Asia M.
<i>wulfenianum</i> & 2 spp.	32	" "	H	Asia Minor

# LOBULARIA (ALYSSUM) $x=8$

<i>maritima</i> (3x) Sweet Alison	24	Manton 1932	H	Medit. cult
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# BERTEROA $x=8$

<i>incana</i>	16	Wulff 1939b	H	Eur., W. Asia
<i>mutabilis</i>	16	Manton 1932	—	" "

# CLYPEOLA $x=8$

<i>ionthaspis</i>	32	Jaretsky 1928a	H	Medit., W. & C Asia
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# VESICARIA $x=8$

<i>graeca</i>	16	Manton 1932	H	S. Europe
<i>utriculata</i>	16	" "	H	S. Eur., Asia M.

# TRIBE VII: ARABIDEAE

# ARABIS $x=6, 7, 8$

<i>dentata</i>	12	F. H. Smith 1938	—	N. America
<i>laevigata</i>	14	" "	—	
<i>lyrata</i>	16	" "	—	
<i>alpina</i> Rock Cress	16	Sakai 1935	H	Arctic & Alpine
<i>coerulea</i>	16	Favarger 1953	—	Alps—Tatra
<i>turritia</i>	16	Mattick, T. 1950	—	C. & S. Europe, Asia Minor

# ARABIS (cont.)

<i>iwatensis</i>	32	M. & S. 1935		Japan
<i>hirsuta</i>	32	Jaretsky 1928a		N. Temp.
<i>serrata</i>	40	Sakai 1935	H	Japan
<i>holboellii</i> (Apo.)	14, 21 + 0-1B, 28, 35, 42	Böcher 1951, '54	—	North Region

# CARDAMINE \* x = 7, 8, 15

<i>asarifolia</i>	{ 14 16	Lawrence 1931 Manton 1932	—	Europe
<i>amara</i>	Bitter Cress & 7 spp.	16	V	Eur., Asia M., Alt.
<i>bellidifolia</i>	16	L. & L. 1948	—	North & Arctic
<i>parviflora</i>	16	F. H. Smith 1938	—	Temp. Europe & America
<i>pratensis</i>	Lady's Smock { 16, 30, 40 30-76 30-78	Guinochet 1946 Lövkvist 1947 Banach 1950	HV	N. Temp.
<i>californica</i>	32	Manton 1932	—	N. America
<i>pinnata</i> & 2 spp.	48	Schwarzenbach 1922	—	S. Eur. Mts.
<i>chenopodiifolia</i>	64	Manton 1932	—	S. America
<i>pennsylvanica</i>	64	F. H. Smith 1938	—	E: U.S.A.

# BARBAREA \* x = 8

<i>hondoensis</i> & 1 sp.	16	M. & S. 1935		Japan
<i>intermedia</i> & 2 spp.	16	Manton 1932		W. Eur. & Medit.
<i>verna</i> (praecox)	Amer. Cress	16	Jaretsky 1932	OV
<i>vulgaris</i>	Winter Cress	16	Manton 1932	V

# CARDAMINOPSIS x = 8

<i>halleri</i>	16	Jaretsky 1928a	H	Eur. Mts.
<i>petraea</i>	16	L. & L. 1948	—	Arctic & Alpine

# DENTARIA x = 8

<i>macrophylla</i>	16	Morinaga & F. 1931a		Sib., Him., W. Ch.
<i>glandulosa</i>	48	Banach-Pogan 1954		E. Eur., C. Asia
<i>integrifolia</i>	44-56	Crampton 1950		W. N. Amer.
<i>enneaphyllos</i>	80	Banach-Pogan 1954		E. Europe
<i>bulbifera</i>	Coral-wort	96		Eur., Asia M., Cauc.

# NASTURTIUM x = 8

<i>officinale</i>	Green Water Cress	32	Howard & M. 1946	V	Eur., W. Asia, N. Africa
<i>microphyllum</i> (uniseriatum)		64	"		Eur., W. Asia
<i>off. x micr.</i>	Brown W. Cress	48	"		W. Europe, cult

# RORIPPA x = 8

<i>austriaca</i>	16	Howard 1947		E. Eur., W. Asia
<i>pyrenaica</i>	16	Manton 1932		W. & S. Europe
<i>amphibia</i>	16	Howard 1947		Eur., Sib., N. Afr.
	32	L. & L. 1942		
<i>islandica</i>	16	Jaretsky 1932		Cosmop.
	32	Howard 1947		
<i>sylvestris</i>	48	" "		Eur., N. Africa

# SISYMBRELLA x = 8

<i>aspera</i>	16	Manton 1932		S. Europe
<i>dentata</i>	32	" "		S. Italy, Balearics

**TURRITIS**  $x = 8$

<i>glabra</i>	Tower Mustard	{ 16 Manton 1932 32 Jaretsky 1928a	—	Temp. O.W.
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**LEAVENWORTHIA**  $x = 11, 15$

<i>aurea</i>		22 Baldwin 1945	—	S.E. U.S.A.
<i>stylosa</i>		30 " "	—	"
<i>torulosa</i>		30 " "	—	"
<i>uniflora</i> ( <i>michauxii</i> )		30 " "	—	E: U.S.A.

**TRIBE VIII: LUNARIEAE**

**LUNARIA**  $x = 7$

<i>annua</i>	Honesty	28 + 2B Manton 1932	H	S.E. Europe
<i>rediviva</i>		28 + 2B? " "	—	S. Eur., W. Sib.

**PELTARIA**  $x = 7$

<i>turkmena</i>		14 Manton 1932	—	C. Asia
<i>alliacea</i>	Shieldwort	28, 58 " "	HV	S.E. Europe

**RICOTIA**  $x = 7$

<i>lunaria</i>		28 Manton 1932	H	Syria, Egypt
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**THYSANOCARPUS**  $x = 7$

<i>curvipes</i>		28 Manton 1932	—	W: N. America
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**TRIBE IX: EUCLIDIEAE**

**BUNIAS**  $x = 7$

<i>erucago</i>		14 Melinossi 1937	RV	Medit.
<i>orientalis</i>		{ 14 Resende 1937 42 Jaretsky 1928a	FoV	E. Eur., W. Asia

**EUCLIDIUM**  $x = 7$

<i>syriacum</i>		14 Jaretsky 1932		E. Eur., W. Asia
<i>tenuissimum</i> ( <i>tataricum</i> )		14 Manton 1932		C. Asia

**MYAGRUM**  $x = 7$

<i>perfoliatum</i>		14 Jaretsky 1932		Medit., Nr. East
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**NESLIA (VOGELIA)**  $x = 7$

<i>paniculata</i>		14 Manton 1932		Nr. East
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**TAUSCHERIA**  $x = 7$

<i>lasiocarpa</i>		14 Manton 1932		C. Asia
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**HYMENOPHYSA**  $x = 12$

<i>pubescens</i>		24 Manton 1932		Siberia
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**TRIBE X: HESPERIDEAE**

**CHEIRANTHUS**  $x = 7$

<i>cheiri</i>	Wallflower	14 Sakai 1935	H	S. Europe
<i>cinereus</i>		28 Manton 1932	—	Canary Is.
<i>menziesii</i>		28 " "	H	W: N. Amer.

# CHEIRANTHUS (cont.)

<i>tenuifolius</i>	28	Manton 1932	—	Madeira
<i>allionii</i> ( <i>Erysimum</i> )				
Siberian W.	42	Jaretsky 1932	H	cult
<b>ERYSIMUM</b> $x = 7, 8$				
<i>linifolium</i>	14	Manton 1932	H	Spain
<i>cheiranthoides</i> Treacle Mustard	16	" "	—	Eur., N. Amer., N. Asia
<i>cuspidatum</i>	16	" "	—	Greece—Persia
<i>perowskianum</i>	32–36	" "	H	Cauc., Afghan.
<i>purpureum</i>	c. 40	" "	H	Armenia, Syria
<i>helveticum</i>	48	Jaretsky 1928a	—	Eur., Alps
<i>rupestre</i>	c. 56	Manton 1932	—	Asia Minor
<i>canescens</i>	72	" "	—	S. Eur., Cauc.
<b>GOLDBACHIA</b> $x = 7$				
<i>laevigata</i>	28	Manton 1932	H	Asia M., Persia— Himalayas
<b>MALCOLMIA</b> $x = 7, 8, 10?$				
<i>maritima</i> Virginian Stock	14	Jaretsky 1928a	H	S. Europe
	14–16	Manton 1932		
<i>africana</i>	14	Jaretsky 1928a	—	S. Eur., C. Asia
	28	Manton 1932		
<i>flexuosa</i>	16	Jaretsky 1932	—	Greece
<i>chia</i>	32	Manton 1932	H	Medit.
<i>littorea</i>	20	" "	H	W. Medit.
<b>HESPERIS</b> $x = 7, 12, 13$				
<i>bicuspidata</i>	14	Manton 1932	—	Asia Minor
<i>stevieniana</i>	14	" "	—	Greece, Asia M.
<i>runcinata</i>	24	" "	—	C. Europe
<i>matronalis</i> Dame's Violet	24	" "	H	Eur., W. & C. Asia
	28	Jaretsky 1928a		
<i>sylvestris</i>	26	Manton 1932	—	" "
<i>lutea</i>	28	" "	—	Japan

## TRIBE XI: BRASSICEAE

CALEPINA $x = 7$				
<i>irregularis</i> ( <i>corvini</i> )	$\left\{ \begin{array}{l} 14 \\ 42 \end{array} \right.$	Manton 1932 Jaretsky 1932	—	Medit., Nr. East
CONRINGIA $x = 7$				
<i>orientalis</i>	14	Jaretsky 1929	—	E. Medit.
COSSONIA (RAFFENALDIA) $x = 7$				
<i>africana</i>	14	Manton 1932	H	Algeria, Morocco
IRSCHFELDIA (SINAPIS) $x = 7$				
<i>incana</i>	14	Heiser & W. 1948	—	Medit., Nr. East
IORISIA $x = 7$				
<i>monantha</i> ( <i>hypogaea</i> )	14	Manton 1932	H	Sard., Corsica

<b>MORICANDIA</b> $x = 7$					
<i>arvensis</i>	28	Manton 1932	H	W. Medit.	
<b>DIPLOTAXIS</b> $x = 7, 9, 11$					
<i>erucoides</i> White Wall Rocket	14	Manton 1932	—	Medit.	
	14	Jaretsky 1932			
<i>tenuifolia</i>	20+2B	Baez-Major 1934	—	S. & C. Eur.	
	22	Ibarra & P. 1947b			
<i>catholica</i>	18	Manton 1932	—	S. Eur., N. Africa	
	18+2B	Baez-Major 1934			
<i>muralis</i> Wall Mustard	22	Jaretsky 1932	—	S. & C. Europe	
	42	Ibarra & P. 1947b			
	44	Lubbert 1951			
<b>CARRICHTERA</b> $x = 8$					
<i>annua</i>	16, 32	Manton 1932	—	Medit.—Persia	
<b>RAPISTRUM</b> $x = 8$					
<i>hispanicum</i>	16	Ibarra & P. 1948	—	Medit.	
<i>rugosum</i>	16	Baez-Major 1934	—	"	
<b>REBOUDIA</b> $x = 8$					
<i>erucarioides</i>	16	Manton 1932	—	Algeria, Morocco	
<b>SUCCOWIA</b> $x = 8, 9$					
<i>balearica</i>	32	Jaretsky 1929	—	W. Medit.	
	36	Manton 1932			
<b>ERUCASTRUM</b> $x = 8, 15$					
<i>obtusangulum</i>	16	Coutinho & L. 1948	—	Europe	
<i>abyssinicum</i>	32	Manton 1932	—	Abyssinia	
<i>nasturtiifolium</i>	32	" "	—	S.W. & C. Eur.	
<i>elatum</i>	30	" "	—	Morocco	
<i>gallicum</i>	30	" "	—	W. & C. Europe	
<b>BRASSICA</b> $x = 8, 9, 10, 11$ . $x_1 = 17, 18, 19$					
$x = 8$					
<i>nigra</i> ( <i>Sinapis</i> ) Black Mustard	16	Nagai & S. 1930	SpO	cult	
$x = 9$					
<i>alboglabra</i>	18	Karpechenko 1924a	V	S.W. Asia	
<i>balearica</i>	18	Manton 1932	V	Balearics	
<i>insularis</i>	18	" "	—	Sardinia	
<i>rupestris</i>	18	" "	—	Sicily	
<i>sylvestris</i> ( <i>oleracea</i> )	18	Griesinger 1937	V	cult	
<i>oleracea</i> Kale (2x),	18 (36)	Howard 1939	V	cult	
Cabbage, etc.	18	Karpechenko 1924a	V		
	(36)	Pirschle 1942			
	(36, 72)	Schtschavinskaja 1937a-			
$x = 10$					
<i>chinensis</i> Shantung C.	20	Richharia 1937b	V	E. Asia	
<i>japonica</i> Curled M.	20	Shimotomai 1925	V	Japan	
<i>marinosa</i>	20	Nagai & S. 1930	V	China	
<i>pamirica</i> ( <i>campestris</i> )	20	Karpechenko 1924a	O	Afghanistan	
<i>pekinensis</i> Pet-sai	20	Richharia 1937b	V	China	
<i>tournefortii</i>	20	Sikka 1940	V?	Medit., S.W. Asia,	
				India	
<i>trilobularis</i>	20	Alam 1936	—	Himalayas	

# BRASSICA (cont.)

<i>campestris</i>	Rape (2x)	20	Karpechenko 1924a	OV	<i>cult</i>
<i>v. toria</i>		20, (30)	Ramanujam 1940		
<i>rapa</i>	Turnip	20	Morinaga 1929	R	<i>cult</i>
		(40)	Schlösser 1936		
<i>x = 11</i>					
<i>elongata</i>		22	Manton 1932	V	S.E. Eur., Nr. East
<i>x<sub>1</sub> = (8 + 9), (8 + 10), (9 + 10).</i>			<i>x<sub>2</sub> = (8 + 9 + 10)</i>		
<i>carinata</i>	Abyssinian C.	34	Karpechenko 1930	V	Abyssinia
<i>juncea</i>	Rai, Indian M.	36	Alam 1936	OSp	S. Asia
<i>campestris</i> × <i>nigra</i>		18, (36)	Ramanujam & S. '43	—	<i>expt.</i>
<i>napus</i>	Rape (4x)	38	Nagai & S. 1930	OV	<i>cult</i>
<i>napobrassica</i>	Swede,	38	Howard 1938	R	<i>cult</i>
	Rutabaga	38, (57, 76)	Morinaga & K. '37		
<i>rugosa</i>	Chinese M.	38	Sikka 1940	SpV	E. Asia
<i>rapo-oleracea</i>	Kale (4x)	38	Crane & T. 1942	V	<i>cult</i>
<i>chinensis-carinata</i>		(54)	Howard 1942	V	<i>expt.</i>
<i>napo-campestris</i>		(56, 58 ?)	Frandsen & W. 1932	V	<i>expt.</i>

# RAPHANO-BRASSICA *x* = 9

<i>sativus-oleraceus</i>		(18, 36)	Karpechenko 1927	V	<i>expt.</i>
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# RAPHANUS *x* = 9

<i>caudatus</i>	Rat-tailed Radish	18	Manton 1932	V	<i>cult</i>
<i>landra</i>	Landra	18	" "	V	Italy
<i>maritimus</i>	Sea Radish	18	" "	V	W. Eur., Medit.
<i>raphanistroides</i>	Jap. R.	18	Sisa 1929	V	Korea
<i>raphanistrum</i>	White Charlock	18	Karpechenko 1928	Sp	Cosmop.
<i>sativus</i>	Radish	18	" 1924a	V	<i>cult</i>
		(36)	Simonet 1938		

# CAKILE *x* = 9

<i>maritima</i>	Sea Rocket	18	Wulff 1937b	V	Eur., N. Africa, S.W. Asia
<i>edentula</i>		{ 18	Kruckeberg 1948	—	N. Amer., Iceland
		{ 36	L. & L. 1947		

# SINAPIS *x* = 9, 12

<i>arvensis</i>	Charlock	18	Sikka 1940	—	Eur., N. Africa, S.W. Asia
<i>alba</i>	White Mustard	24	Karpechenko 1924a	MaOSp	Europe—India

# ERUCA *x* = 11

<i>cappadocica</i>		22	Manton 1932	—	Asia Minor
<i>orthosepala</i>		22	Jaretsky 1932	—	Spain
<i>sativa</i>	Rocket Salad	22	U <i>et al.</i> 1937	OV	Medit., W. Asia

# ORYCHOPHRAGMUS *x* = 12

<i>violaceus</i>		24	Manton 1932	—	Temp. E. Asia
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# RHYNCHOSINAPIS *x* = 12

<i>monensis</i>	Isle-of-Man C.	24	Sikka 1940	V	W: Br. Isles
<i>wrightii</i>	Lundy Cabbage	24	" "	V	Lundy Is.
<i>erucastrum</i>	( <i>Brassica</i>				
<i>cheiranthos</i> )		48	Wright 1936	—	S. & C. Europe

**CRAMBE**  $x = 15$

<i>filiformis</i>		30	Manton 1932	—	S. Spain, N.W. Afr.
<i>fruticosa</i>		30, 60	" "	—	Madeira
<i>maritima</i>	Sea Kale	{ 30	L. & L. 1948	V	W. Eur., Black Sea
		{ 60	Litardière & D. 1942		Asia M., Persia
<i>orientalis</i>					
<i>v. koktebelica</i>		30	Manton 1932	VSp	
<i>v. juncea</i>		c. 120	" "		
<i>hispanica</i>	Spanish Colewort	60	" "	HV	Morocco—S. Per.
<i>tatarica</i>	Tartar Bread Pl.	60, 120	" "	RV	E. Eur., N. Asia
<i>abyssinica</i>		90	" "	—	Abyssinia
<i>cordifolia</i>	Colewort	c. 120	" "	HV	Persia, Cauc.
<i>grandifolia</i>		c. 120	" "	V?	Asia M., Cauc.

**TRIBE XII: SCHIZOPETALEAE**

**SCHIZOPETALON**  $x = 9$

<i>walkerii</i>	18	Manton 1932	H	Chile
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**TRIBE XIII: HELIOPHILEAE**

**HELIOPHILA**  $x = 10, 11$

<i>linearifolia</i>	20	Manton 1932	—	S. Africa
<i>integrifolia</i> ( <i>pilosa</i> )	20	" "	H	"
<i>amplexicaulis</i>	20-22	" "		
<i>crithmifolia</i>	{ 20	" "		
	{ 22	Jaretsky 1932		

**TRIBE XIV: CREMOLOBEAE**

**MENONVILLEA**  $x = 11$

<i>gayi</i>	22	Manton 1932	—	Chile
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**TRIBE XV: PRINGLEEAE**

**PRINGLEA**  $x = 12$

<i>antiscorbutica</i>	Kerg. Cabbage	24	Hamel 1951a	VVit	Kerguelen Is.
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**TRIBE XVI: STANLEYEAE**

**STANLEYA** \*  $x = 12$

<i>pinnata</i> & 2 spp.	24	Rollins 1939b	—	W: N. Amer.
<i>v. integrifolia</i>	24, 48	" "		

**TRIBE XVII: STREPTANTHEAE**

**CAULANTHUS**  $x = 12$

<i>crassicaulis</i>	24	Rollins 1939b	—	W: N. Amer.
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**STREPTANTHUS**  $x = 12$

<i>cordatus</i>	24	Rollins 1939b		W: N. Amer.
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## 40 VIOLACEAE

VIOLA \*  $x = 6, 10, 11, 13$ .  $x_2 = 17$ .  $x_3 = 27$

$x = 6$

<i>alliarifolia</i>	12	Miyaji 1929	—	Japan
<i>biflora</i>	12	" "	H	N. Temp.
<i>hastata</i> & 8 spp.	12	Gershoy 1934	H	N. Amer.
<i>canadensis</i> Canada V.	24	" "	H	N. America
<i>chaerophylloides</i> & 23 spp.	24	Miyaji 1929	H	Japan
<i>lanceolata</i> & 8 spp	24	Gershoy 1934	H	E: N. Amer.
<i>epipsila</i>	24	J. Clausen 1926	H	N. Temp.
<i>palustris</i> Marsh V.	48	" 1931c	—	"
<i>sempervirens</i> ( <i>sarmentosa</i> )	{ 24	" 1929	H	W: N. Amer.
	48	Gershoy 1934		
<i>praemorsa</i> Canary V.	36	" "	H	"
<i>lutea</i>	48	Fothergill 1944	H	Europe
<i>munbyana</i> Algerian V.	48	Griesinger 1937	H	Algeria
<i>nana</i>	48	Fothergill 1944	—	S. Eur., S.W. Asia,
				N. Africa
<i>nuttallii</i>	48	J. Clausen, T. '36	H	W: N. Amer.
<i>pinnata</i>	48	Gershoy 1934	H	Eur., N. Asia
<i>hallii</i> Oregon V.	60-72	" "	H	W: N. Amer.
<i>albescens</i> ( <i>mandschurica</i> )	72	Miyaji 1930	H	N.E. Asia
<i>kitaibeliana</i> Iberian V.	14, 16	J. Clausen 1931d	H	S. Europe
	24, 36, 48			

$x = 10$

<i>adunca</i> ( <i>canina</i> ) Hook V.				
& 5 spp.	20	Gershoy 1934	H	N: U.S.A.
<i>elegantula</i> Bosnian V.	20	J. Clausen 1931d	H	Balkans
<i>odorata</i> Sweet Violet & 3 spp.	20	" 1931c	HP	O.W. Temp.
<i>orbilica</i> & 2 spp.	20	Griesinger 1937	—	S. Europe
<i>reichenbachiana</i> ( <i>sylvestris</i> )	20	Valentine 1950	H	Eur., Cauc.,
				Kashmir, N. Afr
<i>sachalinensis</i> & 2 spp.	20	Miyaji 1929	—	N. Temp.
<i>striata</i> Striped V.	{ 20	Gershoy 1934	H	N. America
	1B	J. Clausen 1929		
<i>uliginosa</i>	20	" "	—	Europe
<i>riviniana</i>	35, 40, 46, 47	Valentine 1949	H	Eur., Morocco
<i>bertolonii</i>	40	Griesinger 1937	H	Corsica
<i>calcarata</i> Spurred V.	40	" "	H	Eur. Alps
<i>canina</i> Dog V.	{ 40	Bruun 1932a	H	N. Temp.
	40-47	J. Clausen 1931b		
<i>contempta</i>	40	Fothergill 1944	—	N.W. Europe
<i>elator</i> Tall V.	40	Gershoy 1934	H	Temp. Eurasia
<i>pumila</i> ( <i>pratensis</i> )	40	" "	H	Europe
<i>zoysii</i> ( <i>calcarata</i> )	40	Griesinger 1937	H	Balkans
<i>howellii</i> c. 80		Gershoy 1934	—	Oregon
<i>orphanidis</i>	20, 21, 22	J. Clausen 1931d	—	Macedonia

$x = 13$

<i>declinata</i> ( <i>dacica</i> )	26	Griesinger 1937	H	Hungary
<i>diffusa</i>	26	Miyaji 1929	—	Himal., China
<i>saxatilis</i> ( <i>alpestris</i> )	26	J. Clausen 1931d	H	E. Eur. Alps
<i>tricolor</i> Pansy, Heartsease	26	" 1931c	H	N. Temp.
4 vars.	26	Fothergill 1944		
<i>tricolor</i> × <i>lutea</i>	26-53	" 1938	H	<i>nat. pop.</i> (Eur.)

# VIOLA (cont.)

$x = 11$

<i>cornuta</i>	Horned V.	22	J. Clausen 1931d	H	Pyrenæes
<i>orthoceras</i>		22	" 1927	—	Caucasus
<i>blanda</i>	Sweet White V.	44	Gershoy 1934	H	E: N. Amer
<i>incognita</i>		44	" "	H	N. America

$x_1 = 17$  (6 + 11)

<i>arvensis</i>	Field Pansy	34	J. Clausen 1937c	H	Europe
<i>deseglisei</i>		34	Fothergill 1944	—	"
<i>obtusifolia</i>		34	" "	—	"
<i>ruralis</i>		34	" "	—	"
<i>rafinesquii</i>		c. 34	Gershoy 1934	—	N. America
<i>hispida</i> (rothomagensis)		34	J. Clausen 1931c	H	N.E. France

$x_3 = 27$  (6 + 10 + 11), 28

<i>affinis</i>	Leconte V. & 20 spp.	54	Gershoy 1934	H	N. America
<i>pedata</i>	Birdsfoot V.	56	" "	H	"

## HYBANTHUS (IONIDIUM) $x = 12$

<i>parviflorus</i>		24	Heilborn 1926	M	S. America
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## 41 RESEDACEAE

### RESEDA $x = 6, 7, 10$ . $x_1 = (6 + 7)$

<i>odorata</i>	Mignonette	12	Oksijuk 1929, 1935	HP	N. Africa
<i>phyteuma</i>		12	Eigsti 1936		Medit., A. Minor
<i>alba</i>		20	" "	H	Eur., S.W. Asia
<i>lanceolata</i>		24	" "		Spain
<i>luteola</i>	Dyer's Green-Weed	{ 24, 26	" "	D	Eur., S.W. Asia
		28	L. & L. 1944b		
<i>virgata</i>		28	Eigsti 1936		Spain & Portugal
<i>complicata</i>		28, 30	" "		Spain
<i>lutea</i>		48	" "		Eur., S.W. Asia
<i>stricta</i>		48	" "		Algeria

### ASTROCARPUS $x = 10$

<i>sesamoides</i>		20	Oksijuk 1935	H	Spain
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## 42 POLYGALACEAE

### BREDEMEYERA $x = 7$

<i>colletioides</i>		14	Covas & S. 1946		S. America
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### POLYGALA $x = ?$

<i>triflora</i> (erioptera)		38	Hagerup 1932		Asia, Trop. Afr.
<i>japonica</i>		42	Suzuka 1950a		Temp. & Trop. Asia
<i>vulgaris</i>	Milkwort	{ 28, 32, c. 56	Mattick, T. 1950		Eur., Asia M., N. Africa
		48, 56	Wulff 1938		
		c. 70	L. & L. 1944b		

## Group IV

### SAXIFRAGALES

45-47

H

### PODOSTEMONALES

50, 51

H

### POLYGONALES

57, 58

HST

### SARRACENIALES

48, 49

H

### CARYOPHYLLALES

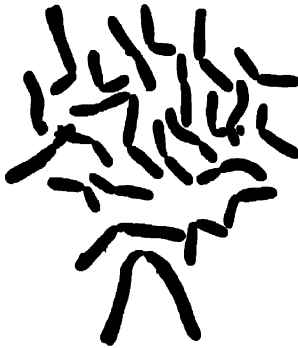
52-56

HS

### CHENOPODIALES

59-64

HST



*Melandrium album*



## 45 CRASSULACEAE

SEDUM\* x = 4, 5, 6, 7, etc.

<i>pusillum</i>		8	Baldwin 1940	—	N. America
<i>stellatum</i>		10	" "	H	S. Europe
<i>gracile</i>		12	" 1937	H	
<i>nevii</i>		12	Clausen & U. 1943	H	W: N. Amer.
<i>dumulosum</i>		14	Uhl 1952	—	China
<i>rhodanthum</i>		14	" "	—	W: N. Amer.
<i>hispanicum</i>	14, 28, 30, 40		Baldwin 1939	H	S. Eur., Asia M
<i>debile</i>	14-18		Clausen & U. 1943	—	W: N. Amer.
<i>alpestre</i>	16		Favarger 1953	—	Eur. Mtns.
<i>acre</i>	Wall-pepper 16, 48		Wulff 1937b	HM	Eur., N. Asia
<i>stenopetalum</i>	16, 48		Clausen & U. 1943	—	W: N. Amer.
<i>ternatum</i>	16, 24, 32, 48		Baldwin 1942b	H	"
<i>nuttallianum</i>	20		" 1940	—	N. America
<i>tatarinowii</i>	20		" 1937	H	China
<i>annuum</i> & 2 spp.	22		" 1937, 1940	—	Eur., W. Asia
<i>verticillatum</i>	22		Soeda 1944	—	Kamchatka
<i>yezoense</i>	22		" "	—	Japan
<i>rosea (rhodiola)</i>	Roseroot 22, 36		Uhl 1952	HM	North & Arctic
<i>pulchellum</i>	22, 44, 66			H	N. America
	(64, 72)		Baldwin 1943		
<i>oreganum</i>	24		Clausen & U. 1944	H	W: N. Amer.
<i>sordidum</i>	24		Soeda 1944	—	Japan
<i>taquetii</i>	24		Baldwin 1937	—	Korea
<i>telephioides</i>	24		" "	—	E: N. Amer.
<i>maximum</i>	24, 48		" 1939	H	Eur., Cauc.
<i>wrightii</i>	24, 72		Clausen & U. 1943	—	W: N. Amer.
<i>coeruleum</i>	28		Sugiura 1936a	H	Medit.
<i>divergens</i> & 2 spp.	28		Baldwin 1935	H	W: N. Amer.
<i>beyrichianum</i>	28, 56		Clausen & U. 1943	—	"
<i>griffithsii</i>	28, 58		" "	—	N. Amer.
<i>dasyphyllum</i>	28, 42, 56		Baldwin 1939	H	Europe
<i>glanduliferum</i> & 2 spp.	30		Hollingshead 1942	—	W: N. Amer.
<i>spatulifolium</i> & 3 spp.	30		Clausen & U. 1944	H	"
<i>cockerellii</i> & 2 spp.	32		" 1943	—	N. America
<i>album</i>	32, 64		Baldwin 1939	H	Arabia
<i>kamtschaticum</i>	32, 48, 64		Soeda 1944	H	E. Asia
<i>reflexum</i>	{ 34, 68		Baldwin 1935	H	Europe
	{ c. 112		Soeda 1944		
<i>mexicanum</i>	36		Skovsted 1934b	—	Mexico
<i>telephium</i>	Orpine, { 36		Baldwin 1937	H	Eur., N. Asia
	Livelong { 48		L. & L. 1948		
<i>stelliferum (topsentii)</i>	42, 44		Clausen & U. 1944	—	W: N. Amer.
<i>oryzifolium</i>	47		Soeda 1944	—	Japan?
<i>cauticolum</i>	48		" "	H	"
<i>alboroseum</i>	{ 48		Baldwin 1937	H	China, Japan
	{ 50		Soeda 1944		
<i>anglicum</i>	Stonecrop 48, 144		Baldwin 1939	H	W. Europe
<i>anacampseros</i>	{ 36		Favarger 1953	H	C. Europe
	{ c. 50		Baldwin 1937		
<i>sieboldii</i>	50		Soeda 1944	H	China, Japan

# SEDUM (cont.)

<i>spectabile</i>	{ 50 Baldwin 1937	H	China, Japan
	51 Soeda 1944	H	
<i>pachyphyllum</i>	64 W.-Lindschau, T. '38	H	Mexico
<i>palmeri</i>	68 " "	H	"
<i>diffusum</i>	c. 72 Clausen & U. 1943	—	Calif.
<i>oregonense</i>	90 " 1944	—	W: N. Amer.
<i>aizoon</i>	128 Soeda 1944	H	Sib., Japan

# ROCHEA $x = 7$

<i>coccinea</i>	14 Baldwin 1936b	H	S. Africa
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# CRASSULA (incl. TILLAEA)\* $x = 7, 8$

$x = 7$			
<i>barbata</i> & 10 spp.	14 Baldwin 1936b	H	S. Africa
<i>orbicularis</i> & 4 spp.	14 Uhl 1948	H	"
<i>sarcocaulis</i>	28 Baldwin 1936b	H	"
<i>trachysantha</i>	28 Uhl 1948	H	"
<i>aquatica</i>	42 Hagerup 1941b	—	N. Temp.
<i>arborescens</i>	42 Baldwin 1936b	H	S. Africa
<i>argentea</i> & 2 spp.	42 Uhl 1948	H	"
<i>nodulosa</i>	56 Baldwin 1936b	H	"
$x = 8$			
<i>corallina</i> & 2 spp.	16 " "	H	"
<i>remotifolia</i>	16 W.-Lindschau, T. '38	H	S. Africa
<i>tetragona</i>	48 Baldwin 1936b	H	"
" <i>nana</i> "	34 " "	H	?
<i>nemorosa</i>	44-46 Skovsted 1934b	H	S. Africa
<i>sarmentosa</i>	c. 60 Baldwin 1936b	H	"
<i>multicava</i>	c. 112 " "	H	"
<i>spathulata</i>	c. 148 " "	H	"

# ADROMISCHUS $x = 9$

<i>cooperi</i>	18 Uhl 1948	H	S. Africa
<i>poellnitzianus</i>	18 " "	H	"
<i>triflorus</i>	18 " "	H	"
<i>mammillaris</i>	36 " 1953	H	"

# COTYLEDON\* $x = 9$

<i>decussata</i> & 4 spp.	18 Uhl 1948	H	S. Africa
<i>macrantha</i>	18 Megata 1941	H	"

# DIAMORPHA $x = 9$

<i>cymosa</i>	18 Baldwin 1940	—	N. America
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# SEDELLA (SEDUM)\* $x = 9$

<i>congdoni</i> & 2 spp.	18 Baldwin 1940	—	California
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# MUCIZONIA $x = 12$

<i>hispida</i>	24 Uhl 1948	—	Europe
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# OROSTACHYS\* $x = 12$

<i>malacophyllus</i> & 1 sp.	24 Soeda 1944	—	E. Asia
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# UMBILICUS\* $x = 12$

<i>horizontalis</i> & 2 spp.	48 Uhl 1948	—	Eur., N. Africa
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<b>AICHRYSON (SEMPERVIVUM) <math>x = 15</math></b>					
<i>dichotomum</i>	30	Skovsted 1934b	H	Canaries	
<i>tortuosum</i>	30	" "	H		
<b>AEONIUM (SEMPERVIVUM) <math>x = 15, 18</math></b>					
<i>ciliatum?</i>	36	Skovsted 1934b		Canaries	
<i>tabulaeforme (berthelotianum)</i>	36	" "	H	Teneriffe	
<i>undulatum</i>	72-74	" "	H	Canaries	
<i>arboresum</i>	60	" "	H	Medit.	
<b>SEMPERVIVUM <math>x = 15, 18</math></b>					
<i>montanum</i>	42	Favarger 1953		S. Eur. Mtns.	
<i>arachnoideum</i>	60	Skovsted 1934b	H	S. Europe	
<i>tectorum</i> Houseleek	72	Rutland 1941	H	Europe, <i>cult</i>	
<b>KITCHINGIA (BRYOPHYLLUM) <math>x = 17</math></b>					
<i>peltata</i>	34	Baldwin 1938	H	Madagascar	
<b>KALANCHOË * <math>x = 17, 18</math></b>					
<i>aegyptiaca</i>	34	Skovsted 1934b	H	Africa	
<i>aromatica</i> & 1 sp.	34	Baldwin 1938	H	Madagascar	
<i>blossfeldiana</i> & 7 spp.	34	Uhl 1948	H		
<i>globulifera</i>	34	Sugiura 1936	H		
<i>laciniata</i>	34, 68	Baldwin 1938	H	Tropics	
<i>spathulata</i>	34, 68	" "	H	Africa	
<i>varians</i>	68	" "	H	Tropics	
<i>crenata</i>	102	" "	H	Trop. Africa	
<i>faustii</i>	170	Uhl 1948	H	Eritrea	
<i>beharensis</i>	36	Baldwin 1938	H	Madagascar	
<i>bracteata</i>	36	Uhl 1948	H		
<i>hildebrandtii</i>	36	Baldwin 1938	H		
<i>orygalis</i>	c. 72	Uhl 1948	H		
<i>synsepala</i>	72	Baldwin 1938	H		
<i>sp.</i>	c. 170	" "			
<i>sp.</i>	c. 500!	" "			
<b>BRYOPHYLLUM (KALANCHOË) * <math>x = 17, 20</math></b>					
<i>aliciae</i>	34	Skovsted 1934b	H	Madagascar	
<i>fedtschenkoi</i> & 2 spp.	34	Uhl 1948	H		
<i>laxiflorum</i>	34	Baldwin 1938	H		
<i>proliferum</i>	34	Soeda 1944	HM		
<i>scandens</i>	34	Baldwin 1938	H		
<i>gastonis-bonnieri</i>	34 + 0-4B	Uhl 1948	H		
<i>miniatum (subpeltatum)</i>	{	34	Baldwin 1938	H	
		70	Uhl 1948		
<i>verticillata</i>	68	Baldwin 1938	H		
<i>pinnatum (calycinum)</i>	40	Uhl 1948	HM	Tropics	
<i>uniflorum</i>	40	" "	H	Madagascar	
<b>ECHEVERIA <math>x = 12, 13, 15, 16, 18, 19, 21, 22</math>, etc. Uhl and Moran 1953</b>					
<i>secunda</i>	64	Rowley unp.	H	W: N. Amer.	
<i>agavoides</i>	112	W.-Lindschau, T. '38	H	Mexico	
<i>retusa</i>	c. 184	Rowley unp.	H	W: N. Amer.	
<b>DUDLEYA * <math>x = 17</math></b>					
<i>edulis</i> & 24 spp.	34	Uhl & Moran 1953	H	W: N. Amer.	
<i>attenuata</i>	34, 68	" "	H	"	

# DUDLEYA (cont.)

<i>ingens</i>	34, 68	Uhl & Moran 1953	H	W: N. Amer.
<i>pauciflora</i>	34, 68			
<i>virens</i>	34, 68			
<i>cultrata</i>	68			
<i>gatesii</i>	68			
<i>traskiae</i>	68			
<i>caespitosa</i>	34, 102, 136			
<i>greenii</i>	68, 102			
<i>lanceolata</i>	68, 102, 136		H	
<i>albiflora</i>	68, 102, 136, c. 170			
<i>palmeri</i>	68, 136, ?170, 238			
<i>anomala</i>	102			
<i>coltomiae</i>	136			
<i>saxosa</i>	136, 170			

# DUDLEYA × HASSEANTHUS $x = 17$

3 hybrids	34	Uhl & Moran 1953		
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# HASSEANTHUS $x = 17$

<i>elongatus</i>	34	Uhl & Moran 1953		W: N. Amer.
<i>variegatus</i>	34	" "		
<i>nesioticus</i>	68	" "		
<i>blochmaniae</i>	34, 68, 102	" "		

# GRAPTOPETALUM $x = 17, 31$

<i>amethystinum</i>	68	Uhl & Moran 1953	H	Mexico
<i>paraguayense</i>	136	" "	H	
<i>rusbyi</i>	62	" "	H	

## 47 SAXIFRAGACEAE

### VAHLIA $x = 6, 9$

<i>oldenlandioides</i>	12	Skovsted 1934b	—	Trop. Asia, Afr
<i>viscosa</i>	18	Raghavan & S. 1942	—	" "

### ASTILBE $x = 7$

<i> davidii</i>	14	Hamel 1949b	H	N. China
<i>japonica</i>	14	Skovsted 1934b	H	Japan
<i>rivularis</i>	28	Hamel 1949b	H	Himalayas

### HEUCHERA $x = 7$

<i>americana</i> Am. Alum Root	14+4B	Skovsted 1934b	H	N. America
<i>cylindrica</i>	14	" "	H	W: N. Amer.
<i>hispida</i>	14	" "	H	N. America
<i>micrantha</i>	14	" "	H	W: N. Amer.
<i>rubescens</i>	14	Schoennagel 1931	H	"
<i>sanguinea</i> Coral Bells	14+3B	Skovsted 1934b	H	N. Mexico
<i>villosa</i>	14+1B	" "	H	N. America

### TELLIMA $x = 7$

<i>grandiflora</i> Alaska Fringe-cup	14	Skovsted 1934b	—	W: N. Amer.
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### TOLMIEA $x = 7$

<i>menziesii</i>	28	Skovsted 1934b	H	N.W: N. Amer
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<b>TIARELLA</b> $x = 7, 9$					
<i>cordifolia</i>	Foam-flower	14	Schoennagel 1931	H	E: N. Amer.
<i>polyphylla</i>		{ 14 18	" M. & S. 1935 "	H	E. Himal., China, Japan
<b>PENTHORUM</b> $x = 8, 9$					
<i>sedoides</i>		16	Baldwin & S. 1951e	—	China
"	Virg. Stonecrop	18	" "	H	N.E: N. Amer.
<b>SAXIFRAGA</b> * $x = 8-14$					
$x = 8$					
<i>androsacea</i>		16	Hamel 1954	H	Alps
<i>nipponica</i>		16	Sakai 1934	—	Japan
<i>sachalinensis</i>		{ 16 40	" M. & S. 1935	—	Sakhalin
<i>flagellaris</i>		32	Flovik 1940	H	Arctic & Subarc.
<i>hirculus</i>		32	L. & L. 1951	H	N. Temp.
<i>prostii</i>		32	Hamel 1954	H	Cevennes
<i>bronchialis</i>		{ 48 48, 49 c. 150	Sakai 1935 Philp 1934a Skovsted 1934b	H	N. Asia, N. Amer.
<i>granulata</i>	Meadow S.	{ 46-60 c. 52	" " " L. & L. 1951	H	Europe
<i>hypnoides</i>		{ c. 44 48, 64	Skovsted 1934b Webb 1950	H	"
<i>rosacea</i>		48, 64	" "	H	Eur., Arctic
<i>cernua</i>		{ 50 60 64	Chiarugi, T. 1950 L. & L. 1948 " 1951	H	N. & Arctic
<i>foliolosa</i>		{ 56 64	" 1948 Harmsen 1939	—	Arctic
<i>groenlandica (caespitosa)</i>		{ 64 56-65 80	" " Skovsted 1934b L. & L. 1951	—	N. Temp., Arctic
<i>hieracifolia</i>		{ c. 80 112 120	S. & S. 1938 Flovik 1940 L. & L. 1948	—	" "
<i>aquatica (petraea)</i>		64	Skovsted 1934b	H	S. Europe
$x = 9$					
<i>cymbalaria</i>	Ivyleaf S.	18	Skovsted 1934b	H	Asia M., Persia
<i>stolonifera</i>	Mother of	{ 36 36, 54	" Okabe 1937 "	H	China, Japan
( <i>sarmentosa</i> )	Thousands				
$x = 10$					
<i>intricata</i>		20	Hamel 1954	H	Pyrenees
<i>tenuis</i>		20	L. & L. 1951	—	North Reg.
<i>melaleuca</i>		40	S. & S. 1938	—	Altai
<i>nivalis</i>	Snowball S.	60	L. & L. 1951	—	North Reg.
$x = 11$					
<i>adscendens</i>	Summer S.	22	Melchers 1935	—	N. Temp.
<i>micranthodifolia</i>		22	Skovsted 1934b	—	S.E: U.S.A.
<i>mutabilis</i>		22	M. & S. 1935	—	Japan
<i>rotundifolia</i>		22	Skovsted 1934b	H	N. Temp.
<i>tridactylites</i>	Rue-leaved S.	22	Melchers 1935	—	Eur., N. Afr. S.W. Asia
<i>ajugaefolia</i>		44	Hamel 1954	H	Pyrenees
<i>irrigua</i>		44	Skovsted 1934b	H	Crimea
<i>perdurans</i>		66	" "	H	Transylvania

# SAXIFRAGA (cont.)

<i>tenella</i>	66	Skovsted 1934b	H	E. Alps
<i>x</i> = 12				
<i>caesia</i>	24	Reese 1952a	H	Alps
<i>x</i> = 13				
<i>aizoides</i> & 3 spp.	26	Skovsted 1934b	H	N. Temp., Arctic
<i>aspera</i>	26	Favarger 1949b	H	Alps
<i>cervicornis</i> & 2 spp.	26	Hamel 1954	H	Cors., Sard.
<i>tricuspidata</i>	26	Bøcher & L. 1950	H	Arctic, Subarctic
<i>oppositifolia</i> Purple S.	26, 52	L. & L. 1951	H	N. Temp., Arctic
<i>rivularis</i> Brook S.	26 52 56	Flovik 1940 L. & L. 1948 Bøcher 1938a	—	" "
<i>nathorsti</i> (aiz. × opp.)	52	" 1941	—	Greenland
<i>x</i> = 14				
<i>aizoon</i> & 7 spp.	28	Skovsted 1934b	H	N. Temp., Arctic
<i>cuneata</i>	28	Hamel 1954	H	Pyrenees
<i>crustata</i>	28	" 1950	H	Tyrol
<i>florulenta</i>	28	" "	H	Alps
<i>mutata</i>	28	" "	H	E. Alps
<i>trifurcata</i>	28	" 1954	H	Pyrenees
<i>crassicaarpa</i>	56	Bøcher 1938a	—	N. America
<i>forbesii</i>	56	Burns 1942	—	"
<i>pennsylvanica</i>	56, 84, 112	" "	H	"
<i>exarata</i>	c. 68	Skovsted 1934b	H	Alps—Persia

# PARNASSIA *x* = 9

<i>palustris</i> Grass of Parnassus	18, 27 36, 54	} Erlandsson 1942c S. & S. 1941	H	N. Temp.
<i>obtusiflora</i>	36		H	Arctic

# BOYKINIA (SAXIFRAGA) *x* = 11

<i>tellimoides</i>	22	Skovsted 1934b	H	Japan
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# CHRYSO SPLENIUM *x* = 12, 21

<i>flagelliferum</i>	24	M. & S. 1935	—	E. Asia
<i>tetrandrum</i>	24	Flovik 1940	H	Eur., N. As., N. America
<i>oppositifolium</i>	42	Schoennagel 1931	H	Eur., N. As., India
<i>alternifolium</i> Gold Sax.	48	Skovsted 1934b	H	Eur., N. As., N. America

# FRANCOA *x* = 13

<i>sonchifolia</i>	52	Schoennagel 1931	H	Chile
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# KIRENGESHOMA *x* = 13

<i>palmeta</i>	52	Hamel 1951b	H	Japan
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# RODGERSIA *x* = 15

<i>podophylla</i>	30	Hamel 1949b	H	Japan
<i>pinnata</i>	60	" "	H	Yunnan
<i>sambucifolia</i>	60	" "	H	"

# ASTILBOIDES (RODGERSIA) *x* = 17

<i>tabularis</i>	34	Hamel 1949b	H	N. China
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**BERGENIA (SAXIFRAGA)  $x = 17$** 

<i>ciliata</i>	34	Hamel 1948b	H	Nepal
<i>cordifolia</i>	34	" "	H	Siberia
<i>ligulata</i>	34	" "	H	Himalayas

**PELTIPHYLLUM (SAXIFRAGA)  $x = 17$** 

<i>peltatum</i>	Umbrella Pl.	34	Hamel 1948a	H	Calif.
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**48 DROSERACEAE****DROSOPHYLLUM  $x = 6$** 

<i>lusitanicum</i>	12	Behre 1929	CH	Portugal, Mor.
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**DROSERA  $x = 10, 14$** 

<i>burmanni</i>	20	Venkatasubban 1950	C	Trop. As. & Aust.
<i>intermedia</i>	20	Behre 1929	CH	Eur., N. Amer.
<i>rotundifolia</i>	20	" "	BCM	" "
<i>obovata</i> (rot. $\times$ ang.)	30	Shimamura 1941	—	nat. hybrid
<i>anglica</i>	40	Rohweder 1937	C	Europe
<i>capensis</i>	40	Behre 1929	C	S. Africa
<i>peltata</i>	40	Venkatasubban 1950	C	Australia
<i>cistiflora</i>	60	Behre 1929	C	S. Africa
<i>spathulata</i>	80	" "	C	Austr., N.Z.
<i>indica</i>	28	Venkatasubban 1950	C	O.W. Tropics

**DIONAEA  $x = 15, 16$** 

<i>muscipula</i>	Venus' Fly-trap	{ 30 C. M. Smith 1929	CH	N. America
		{ 32 Behre 1929		

**49 SARRACENIACEAE****SARRACENIA  $x = 13$** 

<i>drummondii</i>	Pitcher P. & 8 spp.	26	Bell 1949, Hecht 1949	CH	E: N. America
2 hybrids		26	Tjio 1948	CH	cult

**DARLINGTONIA (CHRYSAMPHORA)  $x = ?$** 

<i>californica</i>	Cal. Pitcher Plant	30	Bell 1949	CH	W: N. America
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**50 PODOSTEMONACEAE****WEDDELINA  $x = 20$** 

<i>squamulosa</i>	40	Chiarugi, T. 1936	H	N. Brazil
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**52 ELATINACEAE****BERGIA  $x = 6$** 

<i>ammanoides</i>	24	Hagerup 1932		S. Afr., Tr. Austr.
<i>suffruticosa</i> (odorata)	36	" "		Tr. Afr., Persia

ELATINE  $x = ?$

*triandra* Water Pepper c. 40 Frisendahl 1927 —

Europe

## 53 CARYOPHYLLACEAE

### SF1: ALSINOIDEAE

SAGINA  $x = 6, 11$

<i>apetala</i>	Common Pearlwort	12	Blackburn, Wright '38	—	Eur., W. As., N. Afr., S. Amer.
<i>ciliata</i>		12			Eur., N. Afr.
<i>glabra</i>		18	Rohweder 1939	H	W. Alps, Scotland
<i>subulata</i>		{ 18	"		Europe
		{ 22	Blackburn, Wright '38	H	
<i>procumbens</i>		22	Rohweder 1939	H	N. Temp.
<i>saginoides</i>	Alpine P.	22	Blackburn, Wright '38	—	Alps, Subarctic
<i>maritima</i>	Sea P.	{ 22-24	Wulff 1937a		Eur., N. Afr.
		{ 28	Blackburn, T. 1938	—	
<i>nodosa</i>		{ 20-24	Wulff 1937a		N. Temp., Subarctic
		{ 56	Blackburn, T. 1938	—	
<i>caespitosa</i>		{ 88	Knaben, L. & L. '48		North & Arctic
		{ 100	L. & L. 1944b	—	

SPERGULA  $x = 9$

<i>arvensis</i>	Corn Spurrey	18	Rohweder 1939	Fo(G)	Cosmop.
<i>vernalis</i>		18			C. Europe

SPERGULARIA  $x = 9$

<i>marginata</i>		18	Castro & F. 1946		N. & S. Temp.
<i>rubra</i>	Sand Spurrey	36	L. & L. 1942		N. Temp.
<i>salina</i>		36	" "		

POLYCARPON  $x = 9$

<i>loeflingiae</i>		36	Pal 1952	—	O.W. Tropics
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CERASTIUM \*  $x = 9, 19$

$x = 9$

<i>candidissimum</i>		36	Rohweder 1939	—	Greece
<i>carinthiacum</i>	& 9 spp.	36	Söllner 1952, '53	—	Eur., Cauc.
<i>latifolium</i>	& 2 spp.	36	Favarger & S. 1949	—	"
<i>semidecandrum</i>		36	Brett 1955	—	Eur., N. Africa, W. Asia
<i>arvense</i>		{ 36, 72	Söllner 1952		
		{ 36, 38, 72	Brett 1955	—	N. Temp.
<i>cerastoides</i>		{ 36	Mattick, T. 1950		
		{ 38	Favarger & S. 1949	—	Alps, Arctic
		{ 40	L. & L. 1948		
		{ 34, 38	Bøcher & L. 1950		
<i>tetrandrum</i>		{ 36	Rohweder 1939		
		{ 72	Brett 1955	—	W. Europe
<i>tomentosum</i>	Dusty Miller	{ 38	Rohweder 1939	H	S.E. Eur., Cauc.
		{ 72	Brett 1955		
<i>brachypetalum</i>		{ 52	Söllner 1952		
		{ 90	Brett 1955	—	Eur., N. Afr., Cau.
<i>tenoreanum</i>		54	Söllner 1953	—	Eur., Medit.

# CERASTIUM (cont.)

<i>alpinum</i>	{ 72, 108, c.	54, 72	Bøcher & L. 1950	Arctic, Alps
<i>atlanticum</i> & 5 spp.		144	Brett 1952	Spain
<i>glomeratum</i> & 1 sp.		72	Söllner 1952, '53	Cosmop.
<i>glutinosum</i> & 1 sp.		72	Brett 1955	Eur., N. Asia
<i>regellii</i>		72	Hagerup 1944	Arctic
<i>pumilum</i>		72	Flovik 1940	Eur., N. Afr., W. Asia
		90, 95	Brett 1955	North Reg.
<i>arcticum</i> ( <i>edmonstonii</i> )		108		N. Temp.
<i>fontanum</i>	{ c.	120	Mattick, T. 1950	
	{ c.	144	Söllner 1952	
<i>holosteoides</i> Mouse-ear	{	126	Hagerup 1944a	
Chickweed	{	144	Söllner 1952	Cosmop.
	{	136-152	Brett 1955	
<i>macrocarpum</i>		144	Söllner 1952	Mesopotamia
sp. aff. <i>holosteoides</i>		162		
<i>x</i> = 19				
<i>anomalum</i>		38	Favarger & S. 1949	Eur., S.W. Asia
<i>perfoliatum</i> & 4 spp.		38	Brett 1955	Medit., Asia M.

# DRYMARIA (CERASTIUM) *x* = 19

<i>cordifolium</i>		38	Rohweder 1939	N. & S. Temp.
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# MOENCHIA *x* = 9, 19

<i>erecta</i>		36	Blackburn, T. 1937	Europe
<i>mantica</i>		38	" "	

# ARENARIA *x* = 10, 11

<i>marschlinsii</i>		20	Woess 1941	Europe
<i>serpyllifolia</i> Sandwort		20, 40	" "	Eur., N. Amer., Temp. As.
<i>ciliata</i>		40	Horn 1948	H Europe
<i>humifusa</i>		40	" "	"
<i>norvegica</i>		80	" "	Scand., Scotland
<i>gothica</i>		100	" "	Sweden, Switz., N. England
<i>biflora</i>		22	Favarger 1949b	H Arctic

# HOLOSTEUM *x* = 10

<i>umbellatum</i>		20	Rohweder 1939	Eur., W. Asia, N. Africa
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# STELLARIA \* *x* 10, 11, 12, 13.

<i>apetala</i> ( <i>pallida</i> )	{	20	Negodi 1935	— Europe
	{	22	Peterson 1936	
<i>neglecta</i>		22, 44	" "	
v. <i>cupaniana</i>		40	Negodi 1935	
<i>bulbosa</i>		33	Peterson 1936	
<i>media</i> Common Chick-weed	{	40	Negodi 1935	(Fo) Cosmop.
	{	42, 44	Peterson 1936	
	{	28	Pal 1952	
<i>alsine</i> ( <i>uliginosa</i> )	{	24	Rohweder 1939	N. Temp.
Bog Stitchwort	{	26	Mattick, T. 1950	
<i>holostea</i> Easter Bells		26	Peterson 1936	H Eur., N. Afr., Cauc.
& 2 spp.				North & Arctic
<i>humifusa</i>		26	Flovik	

# STELLARIA (cont.)

<i>nemorum</i>	Wood C. & 1 sp.	26	Rohweder	—	Eur., Cauc.
<i>longipes</i>		52	Bøcher & L. 1950	—	N. America
<i>monantha</i>		104	" "	—	
<i>palustris</i>		c. 130	Peterson "1936"	—	C. & N. Eur., Temp. Asia

# MOEHRINGIA $x = 12$

<i>ciliata</i>		24	Favarger 1953	—	Alps
<i>trinervia</i>		24	Rohweder 1939	—	Eur., W. As., Sib.
<i>pentandra</i>		48	de Litardière 1948a	—	Europe

# MINUARTIA (ALSINE) $x = 13$

<i>laricifolia</i>		26	Favarger 1949b	—	Europe
<i>rubella</i>		26	L. & L. 1948	—	North & Arctic
<i>stricta</i>		26	" "	—	
<i>verna</i>	Sandwort	78	Rohweder "1939"	—	Eur., N. Amer.

# MYOSOTON (STELLARIA) $x = 14$

<i>aquaticum</i>	Water Chickweed	28	Peterson 1936	—	Eur., N. Asia
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# HONKENYA $x = ?$

<i>peploides</i>	Sea Sandwort	{ 48, 64 66	Rohweder 1939 Flovik 1940	—	N. Temp. & Arctic
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# SF2: SILENOIDEAE ( $x = 12-18$ )

# AGROSTEMMA (LYCHNIS) $x = 12$

<i>githago</i>	Corn Cockle	{ 24 48	Rohweder 1939 Favarger 1946	H	Europe
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# CUCUBALUS $x = 12$

<i>baccifer</i>	Berry Catchfly	24	Favarger 1946		C. & S. Eur., N. Asia
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# HELIOSPERMA $x = 12$

<i>alpestre</i>		24	Favarger 1946	—	E. Alps
<i>quadrifidum</i>		24	Rohweder 1939	H	S. Europe

# LYCHNIS (PETROCOPTIS) $x = 12$

<i>chalconica</i>	Maltese Cross	24	Rohweder 1939	H	Russia, Sib.
<i>coronaria</i>	Rose Campion	24	" "	H	S. Europe
<i>flos-cuculi</i>	Ragged Robin	24	Favarger 1946	H	Eur., N. Asia
<i>flos-jovis</i>		24	" "	H	S. Europe
<i>haageana</i> ( <i>arkwrightii</i> )		24	Blackburn 1928	H	<i>cult</i>
<i>lagascae</i>		24	Sugiura, T. 1938	- H	Spain

# MELANDRIUM (LYCHNIS) \* $x = 12$

<i>apetalum</i>	& 9 spp.	24	Blackburn 1928	—	North & Arctic
<i>album</i>	Evening or White Campion	♀ 22+XY ♂ 22+XY (48)	Westergaard 1946	H	Eur., N. Africa, W. Asia
<i>rubrum</i>	Morning or Red	24, 48	L. & L. 1942	H	Eur., N. Africa, W. Asia
<i>(diolcum)</i>	Campion				
<i>furcatum</i>		48	Nygren 1949	—	North & Arctic
<i>virginicum</i>	& 4 spp.	48	Blackburn 1928	H	N. America

# MELANDRIUM (cont.)

<i>triflorum</i>	72	Bøcher & L. 1950	—	Arctic
<i>laciniatum</i>	96	Blackburn 1928	H	Mex., Calif.

# SILENE \* $x = 12$

<i>acaulis</i> Moss Champion	24	L. & L. 1944b	H	Alps & Arctic
<i>cucubalus</i> Bladder Champion	24	Blackburn 1928		Eur., Temp. Asia, N. Africa
<i>armeria</i> & 4 spp.	24	Favarger 1946	H	S. & C. Europe
<i>otites</i> Spanish Catchfly	24	Lorenzo-Andreu 1951	—	S. & C. Eur., W. Asia
<i>schafta</i> & 56 spp.	24	Blackburn 1928	H	Caucasus
<i>vallesia</i>	{ 24, 48 48	D. Löve 1942	H	Alps
<i>fortunei</i>	30	Heaslip 1951		China
<i>ayachica</i>	48	Favarger 1946		Morocco
<i>pontica</i>	48	D. Löve 1942		Rumania
<i>campanulata</i> & 3 spp.	48	Kruckeberg 1955		W : N. Amer.
<i>stellata</i> Starry Champion & 2 spp.	48	Heaslip 1951	H	E: N. Amer.
<i>ciliata</i>	{ 24, 48, 192 c. 120	Blackburn 1928	H	S. Europe
<i>californica</i> & 2 spp.	96	Favarger 1946 Kruckeberg 1955		W : N. Amer.

# VISCARIA (LYCHNIS) $x = 12$

<i>vulgaris</i> German Catchfly	24	D. Löve 1942	H	Eur., N. Asia
<i>alpina</i> Red Alpine C.	24	Rohweder 1939		North & Arctic
<i>sartorii</i>	24	Favarger 1946		Balkans

# SAPONARIA \* $x = 14$

<i>officinalis</i> Soapwort & 3 spp.	28	Favarger 1946	HM	Eur., Temp. Asia
<i>pumila</i> & 5 spp.	28	Blackburn & B. 1930	H	Alps

# VELEZIA $x = 14$

<i>rigida</i>	28	Favarger 1946		Medit.—Afghan.
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# DRYPIS $x = 15$

<i>spinosa</i>	60	Favarger 1946	H	S. Europe
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# KOHLRAUSCHIA $x = 15$

<i>velutina</i>	30	Bøcher <i>et al.</i> 1953		W. & C. Europe
<i>prolifera</i>	30, 60		H	

# TUNICA (DIANTHUS) $x = 15$

<i>olympica</i>	30	Blackburn, T. 1931	H	Asia Minor
<i>saxifraga</i> Tunic Flower	60	" "	H	S. Eur.—Persia

# VACCARIA $x = 15$

<i>pyramidata (segetalis)</i>	30, 60	Favarger 1946	H	Eur., Asia
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# DIANTHUS \* $x = 15$

<i>alpinus</i>	30	Gentscheff 1937b	H	Alps
<i>arboreus</i>	30		H	Greece, Crete
<i>armeria</i> Deptford Pink	30		H	Eur., Cauc.
<i>atrorubens</i>	30		H	S. Europe
<i>barbatus</i> Sweet William	30	Favarger 1946	H	S. Eur., S. Russia
<i>capitatus</i>	30	Gentscheff 1937b	H	E. Eur., S. Russia
<i>cruentus</i>	30		H	Greece

# DIANTHUS (c. t.)

<i>cyri</i>	30	Gentscheff 1937b	H	Asia M.—Afghan.
<i>frivaldskyanus</i>	30		H	Thrace
<i>gracilis</i>	30		H	Macedonia
<i>graniticus</i>	30		H	S. France
<i>japonicus</i> Japinese C.	30	Sugiura 1936a	HP	Japan, Manch.
<i>knappii</i>	30	Gentscheff 1937b	H	E. Balkans
<i>liburnicus</i>	30	" "	H	S. Europe
<i>microlepis</i>	30	Rohweder 1934	H	Greece
<i>nardiformis</i>	30	Gentscheff 1937b	H	S.E. Europe
<i>neglectus (glacialis)</i>	30		H	S. Europe
<i>nitidus</i>	30		H	C. Europe
<i>noëanus</i>	30		H	Rumania
<i>panicii</i>	30		H	Bulgaria
<i>pelviformis</i>	30		H	Serbia, Bulgaria
<i>pinifolius</i>	30	Rohweder 1934	H	Greece
<i>pruinosis (haematocalyx)</i>	30	Gentscheff 1937b	H	"
<i>sylvestris</i>	30		H	Alps
<i>ramosissimus (pallidiflorus)</i>	30		H	S. Russia
<i>tergestinus</i>	30		H	Dalmatia
<i>viscidus (grisebachii) &amp; 11 spp.</i>	30		H	Greece
<i>carthusianorum</i> Cluster-head P.	30, 60	Favarger 1946	H	C. & S. Europe
<i>as subneglectus</i>	30	Gentscheff 1937b		
<i>as tenuifolius</i>	30	" "		
<i>as subfastigiatus</i>	30	Ishii 1930		
<i>caryophyllus</i> Clove Pink, Carnation	30, 90	Gentscheff 1937b	HP	S. Eur., N. Africa
<i>chinensis</i> Rainbow Pink	30, 60		H	Eur., Temp. Asia
<i>as sinensis, collinus,</i>	60, 90	Rohweder 1934,		
<i>laciniatus</i>	30, 60	Ishii 1930		
<i>deltoides</i> Maiden Pink	30	Favarger 1946	H	Eur., Temp. Asia
<i>as glaucus</i>	60	Gentscheff 1937b		
<i>monsperulianus</i>	30, 60, 90	Janaki Ammal & S	52 H	S.W. Europe
<i>plumarius</i> Cottage Pink	30, 90	Rohweder 1930	H	S.E. Europe
<i>as lumnitzeri</i>	60	Gentscheff 1937b		
<i>pungens</i>	{ 30	Lorenzo-Andreu 1951	H	Spain
	{ 90	Gentscheff 1937b		
<i>superbus</i>	30, 60	Darlington 1937a	H	Eur., N. Asia
<i>as wimmeri</i>	60	Ishii 1930		
<i>attenuatus</i> Rosetuft Pink	60	Gentscheff 1937b	H	Spain, Morocco
<i>brachyanthus (subacaulis)</i>	60		H	Spain
<i>furcatus</i>	60		H	Ital. Alps
<i>haematocalyx</i>	60	Rohweder 1934	H	Greece
<i>hirtus</i>	60		H	France
<i>hispanicus</i>	60		H	Spain
<i>kitaibelii (petraeus)</i>	60	Gentscheff 1937b	H	S.E. Europe
<i>latifolius</i>	60	Shibukawa 1930	H	<i>cult</i>
<i>leptopetalus</i>	60	Gentscheff 1937b	H	Maced., Cauc.
<i>orbiculus (cruentus)</i>	60	Rohweder 1934	H	Greece
<i>requieni</i>	60	Gentscheff 1937b	H	S. Europe
<i>sternbergii &amp; 2 spp.</i>	60	Rohweder 1934	H	"
<i>strictus (bebius, integer) &amp; 2 spp.</i>	60	Gentscheff 1937b	H	Dalm., Greece
<i>arenarius</i>	60		H	N. Europe
<i>as praecox</i>	90			

## DIANTHUS (cont.)

<i>campestris</i>	Field Carnation	60, 90	Gentscheff 1937b	H	Caucasus
<i>gallicus</i>		60, 90	" "	H	France, Spain
<i>gratianopolitanus</i> ( <i>virgineus</i> )	Cheddar Pink	60, 90	" "	H	W. & C. Europe
<i>allwoodii</i>		90	Shibukawa 1930	H	<i>cult</i>
<i>anatolicus</i>		90	Gentscheff 1937b	H	Asia Minor
<i>angulatus</i>		90	" "	H	Himalayas
<i>boissierii</i>		90	" "	H	S. Spain
<i>crinitus</i>		90	" "	H	Asia M.—N.W. India
<i>fragrans</i> ( <i>liboschitzianus</i> )		90	" "	H	Caucasus
<i>holtzeri</i>		90	" "	H	Turkestan
<i>pubescens</i> & 2 spp.		90	Ishii 1930	H	Greece
<i>seguieri</i> ( <i>caucasicus</i> )		90	Gentscheff 1937b	H	S.W. Europe
<i>squarrosus</i>		90	" "	H	Russia—Sib.
<i>zonatus</i> ( <i>plumarius</i> ?) & 5 spp.		90	" "	H	Greece, Asia M.

## GYPSOPHILA $x = 17$

<i>elegans</i>	{	220 (40)	Furusato 1940	H	Caucasus
		34	Blackburn 1928	—	
<i>altissima</i>	{	34	Favarger 1946	—	E. Eur.—C. Asia
<i>arietoides</i>		34–36	" "	H	Persia
<i>fastigiata</i>		34	Skalinska 1950a	H	C Europe
<i>muralis</i>		34	L. & L. 1942b	H	Europe
<i>repens</i>		34	Favarger 1946	H	S. Europe
<i>viscosa</i>		34	Blackburn, T. 1931	H	Syria
<i>arenaria</i>	34, c.	51	Favarger 1946	—	Europe
<i>arrostii</i>		68	Blackburn, T. 1931	—	S. Eur., Asia M.
<i>trichostoma</i>		68	" "	H	Cauc., Turkest.
<i>pacifica</i>		68	Favarger 1946	H	Siberia
<i>libanotica</i>		36	" "	H	Lebanon

## 54 MOLLUGINACEAE

### MOLLUGO $x = 9$

<i>cerviana</i>	18	Sugiura 1936a	V	O.W. Subtrop.
<i>pentaphylla</i> ( <i>stricta</i> )	18	" 1944	—	Trop. Asia, Polyn.
	36	Raghavan & S. 1940a	—	
<i>oppositifolia</i>	36	" "	V	O.W. Trop.
<i>racemosa</i>	36	" "	—	India
<i>nudicaulis</i>	54	" "	—	Trop. & Subtrop.
<i>verticillata</i>	64	Sugiura 1936a	—	Trop. Am & Afr.

### GISEKIA $x = 9$

<i>pharnaceoides</i>	36	Raghavan & S. 1940a	—	India
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## 55 FICOIDACEAE

### I. Semi-succulent Group: $x = 8$

### TRIANTHEMA $x = 8$

<i>decandra</i>	16	Raghavan & S. 1940a	—	Trop. Asia
<i>pentandra</i>	Horse Purslane	16	Hagerup 1932 (V)	Trop. Asia, Afr.

# **TRIANTHEMA (cont.)**

<i>polysperma</i>	16	Hagerup 1932	—	India, Trop. Afr.
<i>monogyna</i> ( <i>portulacastrum</i> )	26	Raghavan & S. 1940a	V	Trop. Asia
<i>cristallina</i>	(28) 32	Hagerup 1932	V	Trop. Asia, Africa

# **TETRAGONIA $x = 8$**

<i>crystallina</i>	32	Sugiura 1940	V	Peru
<i>echinata</i>	32	" 1936b	V	S. Africa
<i>expansa</i> N. Zealand Spinach	32		HV	Australasia, Japan

# **SESUVIUM $x = 8$**

<i>portulacastrum</i> Seaside Purslane	48	Raghavan & S. 1940a	V.	Tropics
as <i>Aizoon canariense</i>	32	Sugiura 1936		

## **II. Succulent Group: $x = 9$**

All genera in this group have the same basic number ; all species are orthoploid;  $2n = 18, 27, 36, 54, 72$ , and 108.

### **(i) Purely diploid genera**

# **APATESIA**

<i>helianthoides</i>	18	Rowley unp.	—	S. Africa
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# **APTENIA**

<i>cordifolia</i>	18	Snoad 1951	—	
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# **ARGYRODERMA**

<i>ovale</i>	18	" "	H	
<i>villetii</i>	18	de Vos 1947	H	

# **ASTRIDIA**

<i>maxima</i>	18	Snoad 1951	H	
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# **BIJLIA**

<i>cana</i>	18	" "	H	
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# **CARPANTHEA**

<i>pomeridiana</i>	18	de Vos 1937	—	
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# **CARPOBROTUS\***

<i>edulis</i> & 2 spp.	18	" "	FSb	
<i>fourcadei</i>	18	Snoad 1951	Sb	

# **CARRUANTHUS**

<i>caninus</i>	18	" "	H	
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# **CEROCHLAMYS**

<i>pachyphylla</i>	18	" "	H	
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# **CONICOSIA\***

<i>capensis</i> & 2 spp.	18	" "	H	
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# **CONOPHYLLUM**

<i>herrei</i>	18	de Vos 1947	H	
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# **CORPUSCULARIA**

<i>lehmannii</i>	18	Snoad 1951	H	
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<b>CRYOPHYTUM*</b> <i>crystallinum</i> & 1 sp.	18	Sugiura 1936a	HV	S. Africa
<b>CYLINDROPHYLLUM</b> <i>calamiforme</i>	18	de Vos 1947	H	
<b>DACTYLOPSIS</b> <i>digitata</i>	18	Wulff 1940	H	
<b>DIDYMAOTUS</b> <i>lapidiformis</i>	18	„ 1944	H	
<b>DINTERANTHUS</b> <i>microspermus</i>	18	Snoad 1951	H	
<b>DOROTHEANTHUS</b> <i>bellidiformis</i>	18	de Vos 1947	H	
<b>ECHINUS</b> <i>maximiliani</i>	18	Snoad 1951	H	
<b>EREPSIA</b> <i>inclaudens</i>	18	„ „	H	
<b>GLOTTIPHYLLUM*</b> <i>arrectum</i> & 1 sp. <i>linguiforme</i> <i>uncatum</i> & 2 spp.	18 18 18	de Vos 1947 Takagi 1938 Sugiura 1940	H H H	
<b>HYMENOGYNE</b> <i>glabra</i>	18	Rowley unp.	—	
<b>IMITARIA</b> <i>muirii</i>	18	Wulff 1940	H	
<b>LITHOPS*</b> <i>helmuti</i> <i>lesliei</i> & 2 spp. <i>terricolor</i>	18 18 18	Snoad unp. de Vos 1947 Snoad unp.	H H H	
<b>MACHAIROPHYLLUM</b> <i>minor</i>	18	de Vos 1947	H	
<b>MEYEROPHYTUM</b> <i>meyeri</i>	18	„ „	H	
<b>MITROPHYLLUM*</b> <i>grande</i> & 1 sp. <i>mitratum</i>	18 18	Wulff 1940 de Vos 1947	H H	
<b>MUIRIA</b> <i>hortenseae</i>	18	Wulff 1940	H	
<b>NANANTHUS*</b> <i>aloides</i> & 1 sp. <i>pole-evansii</i> <i>vittatus</i>	18 18 18	Snoad 1951 Rowley unp. „	H H H	

<b>ODONTOPHORUS</b>				
<i>marlothii</i>	18	de Vos 1947	H	S. Africa
<b>OSCULARIA</b>				
<i>caulescens</i>	18	Propach 1934	H	
<i>deltoides</i>	18	Sugiura 1940	H	
<b>PLEIOSPILOS*</b>				
<i>bolusii</i> & 4 spp.	18	de Vos 1947	H	
<i>prismaticus</i>	18	Snoad 1951	H	
<b>PRENIA</b>				
<i>relaxata</i>	18	„ „	—	
<b>PSILOCAULON</b>				
<i>granulicaule</i>	18	„ „	—	
<b>RHINEPHYLLUM</b>				
<i>comptonii</i>	18	„ „	H	
<i>macradenium</i>	18	de Vos 1947	H	
<b>SCHWANTESIA</b>				
<i>herrei</i>	18	„ „	H	
<b>SPHALMANTHUS</b>				
<i>canaliculatus</i>	18	Snoad 1951	H	
<b>STOMATIUM*</b>				
<i>conradii</i> & 2 spp.	18	„ „	H	
<i>fulleri</i>	18	de Vos 1947	H	
<b>TITANOPSIS</b>				
<i>calcareae</i>	18	„ „	H	
(ii) Genera including polyploid species				
<b>ARIDARIA*</b>				
<i>tetragona</i>	18	Snoad 1951	—	
<i>viridiflora</i>	18	de Vos 1947	—	
<i>brevifolia</i> & 5 spp.	36	„ „	—	
<i>quaterna</i>	c. 108	„ „	—	
<b>BERGERANTHUS*</b>				
<i>multiceps</i> & 1 sp.	18	Snoad 1951	H	
<i>scapiger</i>	{ 27	„ „	H	
	{ 36	Johansen 1933		
<i>vespertinus</i>	36	Snoad 1951	H	
<b>CEPHALOPHYLLUM*</b>				
<i>aureorubrum</i>	18	de Vos 1947	—H	
<i>subulatoides</i>	18	Snoad 1951	H	
<i>framesii</i> & 3 spp.	36	de Vos 1947	H	
<i>platycalyx</i>	36	Snoad 1951	H	
<b>CHEIRIDOPSIS*</b>				
<i>carnea</i> & 2 spp.	18	„ „	H	
<i>velutina</i>	18	de Vos 1947	H	
<i>inaequalis</i>	27	Snoad 1951	H	

<b>CHEIRIDOPSIS (cont.)</b>				
<i>bibracteata</i> & 1 sp.	36	Snoad 1951	H	S. Africa
<i>aspera</i> & 4 spp.	36	de Vos 1947	H	
<b>CONOPHYTUM</b>				
<i>flavum</i>	36	„ „	H	
<b>DELOSPERMA*</b>				
<i>aberdeenense</i>	18	Snoad 1951	H	
<i>crassum</i>	18	de Vos 1947	—	
<i>herbeum</i> & 2 spp.	18	Sugiura 1939	—	
<i>ecklonis</i> & 1 sp.	36	de Vos 1947	H	
<i>rogersii</i>	36	Snoad 1951	H	
<i>cooperi</i>	72	Sugiura 1944	H	
<b>DISPHYMA</b>				
<i>crassulina</i>	18	Snoad unp.	—	
<i>crassifolia</i>	36	„ 1951	—	
<i>clavellata</i>	54	„ „	—	
<b>DROSANTHEMUM</b>				
<i>autumnale</i>	36	de Vos 1947	H	
<i>candens</i>	36	Snoad 1951	H	
<i>luederitzii</i>	36	Propach 1934	H	
<b>EBERLANZIA</b>				
<i>hospitalis</i>	72	de Vos 1947	—	
<b>FAUCARIA*</b>				
<i>bosscheana</i> & 1 sp.	18	de Vos 1947	H	
<i>lupina</i>	18	Propach 1934	H	
<i>militaris</i>	18	Rowley unp.	H	
<i>felina</i> & 2 spp.	18	Snoad 1951	H	
<i>haagei</i>	27	„ „	H	
<b>GIBBAEUM*</b>				
<i>album</i> & 12 spp.	18	de Vos 1951	H	
<i>gibbosum</i> & 1 sp.	18	Wulff 1940	H	
<i>angulipes</i>	{ 18	„ „	H	
	{ 36	de Vos 1951	H	
<i>pachypodium</i>	18, 36	„ „	H	
<i>pubescens</i>	{ 18	„ „	H	
	{ c. 54	Johansen 1933	H	
<i>haagei</i>	36	Wulff 1940	H	
<i>luteoviride</i>	36	„ 1944	H	
<i>shandii</i> & 2 spp.	36	de Vos 1947, 1951	H	
<i>geminum</i>	{ 36	„ 1951	H	
	{ 54	Wulff 1940	H	
<b>HEREROA*</b>				
<i>dolabriformis</i> & 2 spp.	18	de Vos 1947	H	
<i>incurva</i> & 1 sp.	18	Snoad 1951	H	
<i>crassa</i>	36	de Vos 1947	—	
<b>HYMENOCYCLUS*</b>				
<i>luteus</i> & 2 spp.	18	de Vos 1947	H	
<i>purpureocroceus</i>	27, 36	„ „	H	
<i>purpureus</i>	36	Snoad 1951	H	

**LEIPOLDTIA\***

<i>nelii</i>	18	de Vos 1947	—	S. Africa
<i>britteniae</i> & 1 sp.	36	" "	—	

**MESEMBRYANTHEMUM\***

<i>aureum</i> & 5 spp.	18	" "	H	
<i>blandum</i> & 3 spp.	18	Sugiura 1944	H	
<i>haworthii</i> & 4 spp.	18	Snoad 1951	H	
<i>brownii</i>	27	" "	H	
<i>falciformis</i> & 1 sp.	36	Propach 1934	—	
<i>glaucum</i>	36	Snoad 1951	H	
<i>reptans</i>	36	de Vos 1947	—	

**MICROPTERUM**

<i>sessiliflorum</i>	36	Propach 1934	—	
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**RUSCHIA\***

<i>crassa</i> & 4 spp.	18	de Vos 1947	—	
<i>perfoliata</i> & 3 spp.	18	Snoad 1951	H	
<i>rigidicaulis</i>	18	Sugiura 1944	—	
<i>tenella</i>	18	Propach 1934	—	
<i>karrachabensis</i>	{ 18	de Vos 1947	—	
	{ 36	Snoad 1951	—	
<i>addita</i>	18, c. 54	de Vos 1947	—	
<i>connata</i>	54	" "	—	
<i>kakamasensis</i>	54	" "	—	
<i>uncinata</i>	54	Snoad 1951	H	

**TRICHODIADEMA**

<i>barbatum</i>	18	" "	H	
<i>bulbosum</i>	36	" "	H	
<i>setuliferum</i>	36	" unp.	H	

**VANHEERDIA\***

<i>primosii</i> & 1 sp.	18	Wulff 1944	H	
<i>divergens</i>	36	" "	H	

**VANZIJLIA\***

<i>angustipetala</i> & 1 sp.	36	de Vos 1947	—	
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**56 PORTULACACEAE****PORTULACA**  $x = 4, 9$ 

<i>species</i>	8	Steiner 1944	—	Arkansas
<i>pilosa</i>	16	" "	—	N. & S. Amer.
<i>smallii</i>	16	" "	—	E. U.S.A.
<i>grandiflora</i>	{ 18, (36)	Furusato 1940	H	Brazil
	18	Steiner 1944	—	
<i>pusilla</i>	18	" "	—	Venezuela
<i>tuberosa</i>	18	Raghavan & A.R.S. 1941b	—	India, Java
	36	Steiner 1944	—	
<i>marginata</i>	54	Hagerup 1932	—	Venezuela
<i>quadrifida</i>	48	Raghavan & A.R.S. 1941b	—	O.W. Tropics
<i>oleracea</i> Purslane	54	Steiner 1944	V	Trop., Subtrop

CLAYTONIA $x_1 = 6$					
<i>asarifolia</i>		24	Blackburn, T. 1937	—	N. As., N: N. Am
<i>perfoliata</i>	Winter P.	36	Rutland 1941	V	N. America

TALINUM $x = 6$					
<i>appalachianum</i>		24	Steiner 1944	—	E: U.S.A.
<i>mengesii</i>		24	" "	—	S.E.: U.S.A.
<i>patens (paniculatum)</i>		24	" "	H(V)	Trop. Amer.
<i>purpureum</i>		24	Sugiura 1935	—	"
<i>teretifolium</i>	Fame	{ 24, 48	Steiner 1944	H	E: N. Amer.
	Flower		Bowden 1945b	—	Texas
<i>aurantiacum</i>		48	Steiner 1944	—	W: N. Amer.
<i>parviflorum</i>		48	" "	—	
<i>triangulare</i>		{ 48	Sugiura 1940	HV	Trop. Amer.
			Steiner 1944	—	" "
<i>variegatum</i>		72	" "	—	

CALANDRINIA $x = 8, 10, 11, 12.$ $x_2 = (11 + 12)$					
<i>grandiflora</i>	Rock P.	{ 16	Sugiura 1936a	H	Chile
			Blackburn, T. 1937	—	
			Sugiura 1940	—	
<i>umbellata</i>		20	" 1936a	H	Peru
<i>compressa</i>		24	" 1937a	H	Chile
<i>discolor</i>		24	" 1940	H	"
<i>menziesii (speciosa)</i>		24	" 1936a	H	Calif.
<i>procumbens</i>		24	" "	—	Chile
<i>ciliata (caulescens)</i>		{ 24	Heiser & W. 1948	H	Peru, Ecuador
			Blackburn, T., 1937	—	
			Sugiura 1940	—	

MONTIA $x = 9, 10$					
<i>lamprosperma</i>		18	Hagerup 1941b	—	N. Temp.
<i>minor</i>		18	Scheerer 1940	—	"
<i>verna</i>		18	Hagerup 1941b	—	"
<i>rivularis</i>		{ 18	" "	—	"
			Scheerer 1940	—	

## 57 POLYGONACEAE

OXYRIA $x = 7$					
<i>digyna</i>	Mountain Sorrel	14	L. & L. 1948	(V)	Alpine
<i>elatior</i>		14, 42	Edman 1929	—	Arctic
KOENIGIA $x = 7$					
<i>islandica</i>		28	L. & L. 1948	—	Himal., Arctic
PTEKOSTEGIA $x = 7$					
<i>drymarioides</i>		28	Sugiura 1936b	—	California
RUPRECHTIA $x = 7$					
<i>polystachya</i>		28	Covas & S. 1947	—	S. America
RUMEX $x = 7, 8, 9, 10$					
$x = 7$					
<i>acetosa</i>	Sorrel,	♀: 12+XX	Ono 1928,		N. Temp.
	Dock	♂: 12+XY <sub>1</sub> Y <sub>2</sub>	A. Löve 1944a		
		inter: 21, 22, 29	Yamamoto 1934		

# RUMEX (cont.)

<i>angiocarpus</i>		♀: 12 + XX	A. Löve 1944b	—	S. & C. Eur., N. Africa
		♂: 12 + XY	"		
<i>montanus</i>	French	♀: 12 + XX	Ono 1930a	V	Europe
	Sorrel	♂: 12 + XY <sub>1</sub> Y <sub>2</sub>	"		
<i>thyrsiflorus</i>		" "	A. Löve 1944a	—	"
<i>temuifolius</i>		♀: 24 + XXXX	" 1944b	—	C. & N. Eur., Arctic
		♂: 24 + XXXY	" "		
<i>acetosella</i>	Sheep's S.	42, (41, 43)	" "	—	Europe
<i>graminifolius</i>		56	" "	—	Kamchatka
x = 8					
<i>pallidus</i> ( <i>salicifolius</i> )		16	Jensen 1936	—	N. America
x = 9					
<i>hastatus</i>		18	Ono 1935	—	Himalayas
<i>papilio</i>		18	" "	—	Morocco
<i>vesicarius</i>		18	Datta 1952	—	Med., N. Afr., India
<i>nepalensis</i>		54	Sugiura 1936a	—	W. Asia—Malaya
x = 10					
<i>alpinus</i>	Monk's Rhubarb	20	Takenaka 1941	MV	C. & S. Europe, Asia Minor, Cauc.
<i>conglomeratus</i>	Sharp Dock	20	A. Löve 1942	—	Eur., N. Africa, Asia Minor
<i>flexuosus</i>		20	Takenaka 1941	—	New Zealand
<i>pulcher</i>	Fiddle D.	20	Heiser & W. 1948	—	Eur., S.W. Asia
<i>sanguineus</i>	Blood Wort	20	A. Löve 1942	M	Eur., N. Afr., Cauc., C. Asia
<i>scutatus</i>	Garden S.	20	" "	V	C. & S. Eur., N.
		(40)	Fikry 1930		Africa, W. Asia
<i>dentatus</i>		40	Pathak <i>et al.</i> 1949	—	Himalayas
<i>maritimus</i>	Golden D.	40	A. Löve 1942	—	Eur., Cauc., Am.
<i>obtusifolius</i>		40	" "	—	Eur., Azores
<i>palustris</i>	Marsh D.	40	" "	—	Eur., Temp. Asia
<i>crispus</i>	Curly Dock	60	" "	M	Eur., Africa
<i>orientalis</i>		60	Takenaka 1941	—	Greece, Asia M.
<i>patientia</i>	Herb Patience	60	Kihara 1927	MV	S. Eur., S.W. Asia
<i>domesticus</i>		{ 60	A. Löve 1942	V	Europe
		{ 80	Takenaka 1941		
<i>longifolius</i>		60, 80	Kihara & O. 1926	V	N. Temp.
<i>cordifolius</i>		80	Takenaka 1941	—	Eur., N. Asia
<i>hymenosepalus</i>	Canaigre	100	Kihara 1927	D	W: N. Amer.
<i>britannicus</i>		160	Jensen 1936	—	N. Amer. ( <i>sic</i> )
<i>aquaticus</i>		c. 200	A. Löve 1942	MV	Eur., N. Asia
<i>arcticus</i>		c. 200	L. & L. 1948	—	Sib., Arctic
<i>hydrolapathum</i>	Wild Rhubarb	c. 200	A. Löve 1942	MV	Europe
<i>maximus</i>		c. 200	" "	—	"

## FAGOPYRUM x = 8

<i>cymosum</i>	Perennial B.	16	Jaretsky 1928b	G	Himal., China
<i>emarginatum</i>		16	" "	G	Eur., N. Asia
<i>esculentum</i>	Buckwheat	16	" 1927	G	<i>cult</i>
		(32, 64)	Sinoto & S. 1940		

# FAGOPYRUM (cont.)

<i>tataricum</i>	Rye B.	16 (32)	Sando 1939	G	cult
EMEX	<i>x</i> = 10				
<i>spinosa</i>		20	Sugiura 1937b		Eur., N. Afr.
MUEHLENBECKIA	<i>x</i> = 10				
<i>complexa</i>		20	Jaretsky 1928b	H	New Zealand
<i>platyclados</i>		20	" "	H	Solomons
<i>sagittifolia</i>		40	" "		S. America
POLYGONUM *	<i>x</i> = 10, 11, 17				
	<i>x</i> = 10				
<i>baldschuanicum</i>			Schnack & F. 1946	H	Bokhara
<i>equisetiforme</i>			Castro & F. 1946	H	Med., S.W. Asia
<i>foliosum</i>			L. & L. 1948		Europe
<i>dumetorum</i>			Jaretsky 1928b		Eur., N. & W. Asia
<i>maritimum</i>	Sea Knotgrass				N. Temp.
<i>hydropiper</i>	Smartweed		S. & S. 1938	M	
<i>convolvulus</i>	Black Bindweed		Jaretsky 1928b A. Löve 1942		
<i>argyrocoleon</i>			Heiser & W. 1948		Persia
<i>minus</i>			Wulff 1939b		Temp. Eur. & Asia
<i>mite</i>					Eur., Asia M.
<i>pusillum</i>			L. & L. 1948		Europe
<i>aviculare</i>	Knot Grass	4	" "	M	Cosmop.
<i>tinctorium</i>	Chinese Indigo		Sugiura 1936a	D	China
<i>divaricatum</i>			Jaretsky 1928b		Siberia
	<i>x</i> = 11				
<i>lapathifolium</i>		22	L. & L. 1948	—	N. & S. Temp.
<i>multiflorum</i>		22	Suzuka 1950	H	China, Japan
<i>orientale</i>		22	Jaretsky 1928b	H	Tropics
<i>pamiricum</i>		22	S. & S. 1938	—	Turkestan
<i>tomentosum</i>		22	L. & L. 1942	—	O.W. Tropics
<i>viscosum</i> & 4 spp.		22	Sugiura 1936b	—	Himalayas
<i>nodosum</i>		22, 44	L. & L. 1942	—	N. Temp., S. Afr.
<i>bioritsuense</i>		44	Sugiura 1936b	—	Formosa
<i>flaccidum</i>		44		—	India, Malaya
<i>japonicum</i>		44		—	Japan
<i>major</i>		44	Jaretsky 1928b	—	N. Eur. & Asia
<i>persicaria</i>		44		—	N. Temp.
<i>bisorta</i>	Bistort	{ 44		HMRV	Eur., Asia M., C. Asia
	Snake-root	{ 46	S. & S. 1938		
<i>polymorphum</i>		46	" "	—	S. Eur., N. Asia
<i>amphibium</i>	Willow Grass	c. 66	Jaretsky 1928b	H	N. Temp.
<i>cuspidatum</i>		c. 88	" "	H	Japan
		c. 88	S. & S. 1938		
<i>viviparum</i>	Serpent Grass	{ c. 100	Flovik 1940	R	Arctic, Alpine
		{ c. 110	L. & L. 1948		
		{ c. 132	Skalinska 1950a		
	<i>x</i> = 17?				
<i>sieboldii</i>	Mex. Bamboo	34	Sugiura 1936b	H	Japan

<b>TOVARA (POLYGONUM) <math>x = 11</math></b>					
<i>filiformis</i>	44	Sugiura 1936b	Fo	E. Asia	
<b>PLEUROPTERUS <math>x = 11</math></b>					
<i>multiflorus</i>	22	Sugiura 1936b	—	China, Japan	
<b>TRIPLARIS <math>x = 11</math></b>					
<i>surinamensis</i>	22	Jaretsky 1928b	H	Trop. Amer.	
<b>RHEUM <math>x = 11</math></b>					
<i>collinianum</i>	22	Edman 1929	—	China	
<i>emodi</i> Redveined R.	22	Chin & Y. 1947	M	Himalayas	
<i>franzbachii</i>	22	" "	—	Temp. Asia	
<i>palmatum</i> Chinese R.	22	Jaretsky 1928b	HMV	Mongolia	
<i>spiciforme</i>	22	" "	—	Himalayas	
<i>officinale</i> Rhubarb	{ 22	" "	M	cult	
	44	Suzuka 1950			
<i>undulatum</i> Bucharian R.	{ 22	China & Y. 1947	—	C. Asia	
	44	Jaretsky 1928b			
<i>altaicum</i>	44	Chin & Y. 1947	—	Altai	
<i>australe</i>	44 (66)	" "	—	Himalayas	
<i>compactum</i>	44	" "	—	Mongolia	
<i>crassinervium</i>	44	Jaretsky 1928b	—	?	
<i>rhaponticum</i> English R.	44	" "	MV	S. Sib., Volga	
<i>ribes</i> Currant-fruited R.	44	Edman 1929	V	Syria, Afghan.	
<i>sanguineum</i> Red Rhubarb	44	" "	V	cult	
( <i>macropterum</i> )					
<i>tataricum</i>	44	Chin & Y. 1947	—	C. Asia	
<i>webbianum</i>	44	Edman 1929	—	Himalayas	
<i>wittrockii</i>	44	" "	—	Turkestan	
<b>REYNOUTRIA <math>x = 11</math></b>					
<i>japonica</i>	44	Sugiura 1936b	—	Japan	
<b>ATRAPAXIS <math>x = 11</math> ? (Apomixis)</b>					
<i>billardieri</i>	c. 45	Edman 1931	—	Greece, Syria	
<i>lanceolata</i> ( <i>frutescens</i> )	c. 45	" "	H	C. Asia	
<i>spinosa</i>	c. 45	" "	—	S.W. Asia	
<b>ANTIGONON <math>x = 7</math></b>					
<i>leptopus</i> Coral Vine	{ 40	Jaretsky 1928b			
	c. 44	Simmonds 1954	H	Mexico	
	48	Edman 1929			
	48	Rao 1936a			
<b>COCCOLOBA <math>x = ?</math></b>					
<i>uvifera</i> Sea Grape	c. 80	Edman 1929	FHW	S.E.: U.S.A., W.I.	
<i>diversifolia</i>	c. 200	Jaretsky 1928b	H	S. Domingo	

## 58 ILLECEBRACEAE

<b>ILLECEBRUM <math>x = 5</math></b>					
<i>verticillatum</i>	10	Reese-1952a		W Eur., Medit.	

# CORRIGIOLA $x = 8, 9$

<i>littoralis</i>	Sergena Root	{ 16 Sugiura 1937b 18 Blackburn, T. 1938 32 Rodrigues 1953	M	Eur., N. & E. Afr. W. Asia
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# HERNIARIA $x = 9$

<i>fruticosa</i>		18 Lorenzo-Andreu & G. 1950	—	W. Medit.
<i>glabra</i>		18 L. & L. 1944b	—	Eur., N. Asia
<i>ciliata</i>		72 Blackburn 1953	—	Guernsey
<i>marginata</i> v. <i>ciliata</i>		{ 108 " 126 Rodrigues 1953	—	Portugal

# PARONYCHIA $x = ?$

<i>argentea</i>		{ 28 Rodrigues 1953 36 Lorenzo-Andreu & G. 1950	—	Medit.
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# SCLERANTHUS $x = 11$

<i>annuus</i>	Knawel	{ 22 Rohweder 1939 44 Ehrenberg 1945	—	Eur., Temp. Asia
<i>perennis</i>		44 Blackburn, T. 1937	—	Eur., W. Asia

## 59 PHYTOLACCACEAE

### PHYTOLACCA $x = 9$

<i>sessilifolia</i>		18 Sugiura 1936a	—	Mexico
<i>acinoso</i>	India Pokeberry	36 "	MV	China, Himal
<i>dioica</i>	Ombù	36 Schnack & C. 1947	HFoSh	S. America
<i>americana</i>	Pokeberry	36 Suzuka 1950	V	S: U.S.A.
<i>octandra</i>	Calalu	36 Sugiura 1936b	V	C. America

### PETIVERIA $x = 9$

<i>alliea</i>	Guinea-henweed	72 Sugiura 1937b	M	Brazil
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### RIVINA $x = 9$

<i>humilis</i>	Rouge Plant	108 Sugiura 1936b	H	Trop. Amer.
<i>tinctoria</i>		108 .. 1940	D?	Peru

## 60 CYNOCRAMBACEAE (THELYGONACEAE)

### THELYGONOM $x = 11$

<i>japonicum</i>		22 Sugiura 1937a	—	Japan
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## 61 CHENOPODIACEAE

### CAMPHOROSMA $x = 6$

<i>annua</i>		12 Pólya 1948	—	E. Europe
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### SPINACIA $x = 6$

<i>oleracea</i>	Spinach	12 (24) Furusato 1940	V	cult., Afghan.
<i>tetrandra</i>	Schamum	12 Lorz 1937	V	Caucasus
<i>turkestanica</i>		12 Dolcher 1949	—	Turkest., Pers., Afghan.

### BASSIA (CHENOLEA)\* $x = 9$

<i>hirsuta</i> & 2 spp.		18 Wulff 1936	—	Italy
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<b>CORISPERMUM</b> $x = 9$					
<i>hyssopifolium</i>	18	Reese 1952a	—		N. Temp.
<b>HABLITZIA</b> $x = 9$					
<i>tamnoides</i>	18	Wulff 1936	—		Caucasus
<b>KOCHIA</b> $x = 9$					
<i>arenaria</i>	18	Wulff 1936	—		S. Eur., W. Asia
<i>scoparia</i> Summer Cypress	18	" "	H		Eur., N. Asia
<i>trichophylla</i>	18	Witte 1947	—		China
<b>MONOLEPIS</b> $x = 9$					
<i>chenopodiodes</i>	18	Wulff 1936	—		W: N. Amer.
<i>trifida</i>	18	" "	—		N. America
<b>NITROPHILA</b> $x = 9$					
<i>australis</i>	18	Covas & S. 1947	—		Argentina
<b>ATRIplex*</b> $x = 9$					
<i>halimus</i>	18	Castro & F. 1946	H		S. Europe
<i>hortensis</i> Orache	18	La Cour 1931	V		Cosmop.
<i>littoralis</i> Salt Bush & 3 spp.	18	Wulff 1937a	—		N. Temp.
<i>patula</i>	18	Witte 1947	—		Cosmop.
<i>semibaccata</i>	18	Kjellmark 1934	Fo		Australia
<i>hastata</i> Mountain O.	18, 36	Heiser & W. 1948	—		Eur., N. Asia
<b>BETA</b> $x = 9$					
<i>macrocarpa</i>	18	Wulff 1936	V		Pers., Cauc.
<i>macrorrhiza</i>	18	Sirotna 1936	V		Eur., N. Afr., S.W. Asia
<i>maritima</i> Sea Beet	18	Kachidze 1935	V		Eur., N. Afr.
<i>patula</i>	18	Wulff 1936	—		Madeira
<i>patellaris</i>	18	Bleier 1930	V		Teneriffe
<i>lomatazona</i>	{ 18	Sirotna 1936	—		A. Min., Syria
	36	Müntzing 1937c			
<i>vulgaris</i> Beet, Mangold	18	Winge 1917	RSu		cult
	18 (19, 20, 27, 36, 42, 45)	Levan 1942b			
<i>v. cicla</i> Spinach Beet	18 (36)	Thomas 1945*	V		cult
<i>corolliflora</i>	36	Zossimovich 1939	V		Persia, A. Minor
<i>lom. × corolliflora</i>	27, 54	Zaikovskaja 1939	—		expt.
<i>trigyna</i>	54	Bleier 1928	R		Balk., A. Minor
<b>CHENOPODIUM*</b> $x = 9$ (8?)					
<i>botrys</i>	16?	Kawatani & O. 1950	P		Cosmop.
<i>hybridum</i> Sowbane	{ 18	Winge 1917	—		Eur., C. Asia,
	36	G. O. Cooper, 1935			N. Africa
<i>murale</i> & 1 sp.	18	Winge 1917	—		N. & S. Temp
<i>virgatum</i> & 1 sp.	18	Wulff 1936	V		Japan
	18	Maude 1940			
	32?	Kawatani & O. 1950			
<i>album</i> Fat Hen, Goosefoot	36	G. O. Cooper 1935, -	(G)V		N. Temp.
	36	Witte 1947			
	54	Kjellmark 1934			
<i>ambrosioides</i>					
Wormseed,	16, 32, 48?	Kawatani & O. 1950	BIV		Trop. Amer.
Mexican Tea	32	Suzuka 1950			
	36	Kjellmark 1934			
	64	Suzuka & K. 1949			
<i>v. anthelminticum</i>	64	Kawatani & O. 1950			

# CHENOPODIUM (cont.)

<i>bonus-henricus</i>	Good-King-Henry	{ 36 L. & L. 1944b 32? Kawatani & O. 1950	V	Europe
<i>quinoa</i>	Quinoa	{ 36 Kjellmark 1934 32? Kawatani & O. 1950	G	Peru, <i>cult</i>
<i>pueblense</i>	Cuahzontli	36 Reed 1950	Sp	Mexico

# HALIMIONE (OBIONE) $x = 9$

<i>pedunculata</i>		18 Wulff 1936		Eur., N. & S.W. Asia
<i>portulacoides</i>	Sea Purslane	36 Castro & F. 1946		Eur., Syria, N. Africa

# SALICORNIA $x = 9$

<i>perennis</i>		18 Hamblen 1954	—	W. Eur., N. Afr.
<i>ramosissima</i>		18 " "	—	N. & W. Eur.
<i>stricta</i>	Glass Wort	18 Castro & F. 1946		
<i>(europaea, herbacea)</i>		18, 36 König 1939	V	Cosmop.
		36-1 2B Maude 1939		
<i>dolichostachya</i>		36 Hamblen 1954	—	W. Europe
<i>arabica</i>		c. 54 Castro & F. 1946	—	Eur., N. Afr.

# SUEDA $x = 9$

<i>splendens</i>		18 Castro & F. 1946		Medit., W. Asia
<i>fruticosa</i>		36 Joshi 1935	M	N. Temp.
<i>maritima</i>	Sea Blite	36 Wulff 1937a	V	N. & S. Temp.
<i>linearis</i>		54 Lorz 1937		N. Amer., Cuba

# SALSOLA $x = 9$

<i>soda</i>	Barilla Plant	{ 18 Castro & F. 1946 36 Wulff 1936	M	N. & S. Temp.
<i>kali</i>	Russian Thistle	36 " 1937a	M	
<i>ragus</i>		36 " 1936		

# ARTHROCNEUM $x = 9$

<i>glaucum</i>		36 Castro & F. 1946	—	Greece, India, Trop. Africa
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# BOUSSINGAULTIA $x = 9$

<i>baselloides</i>		36 MacKenzie, T. 1937	—	Ecuador
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# EUROTIA $x = 9$

<i>ceratoides</i>		36 Wulff 1936	H	Eur., N. Amer.
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# OFAISTON $x = 9$

<i>monandrum</i>		36 Wulff 1936		W. Asia
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## 63 AMARANTHACEAE

# DIGERA $x = 6$

<i>arvensis</i>		12 Puri & S. 1935	V	Trop. Afr. & Asia
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# ACHYRANTHES $x = 7$

<i>bidentata</i>		42 Sugiura 1936b	(G)M	Trop. Asia
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# **AMARANTHUS** $x = 8, 17$

<i>albus</i>		32	Heiser & W. 1948	—	N. America
<i>edulis</i>		32	Covas 1950b	G?	Argentina
<i>gracizans</i>		32	Heiser & W. 1948	—	N. America
<i>hybridus</i>	Red Cockscomb	32	Covas & S. 1946	HM	cult, Tropics
<i>mangostanus</i>		32	Takagi 1933	V	India
<i>paniculatus</i>	Anardana	32	"	GV	"
<i>retroflexus</i>	Red Root	c. 32	Heiser & W. 1948	V	Trop. Amer.
<i>caudatus</i>	Love-lies-bleeding	{ 32	Takagi 1933		
		34	Cardenas & H. 1948	GHMV	Tropics
<i>asplundii</i>		34	"	—	Bolivia
<i>blitum</i>	Wild Amaranth	34	Takagi 1933	V	Temp. & Trop.
<i>gangeticus</i>	Lal sag	34	"	HV	Tropics
<i>spinosus</i>	Spiny A.	34	"	V	"
<i>viridis</i>	Green Calalu	34	Krishnaswamy & R. 1949	V	Temp. & Trop.

# **CELOSIA** $x = 9$

<i>cristata</i>	Cockscomb	36	Grant 1954	HV	Tropics
<i>argentea</i>	Quail Grass	72	" "	V	"
<i>crist. x arg.</i>	51 (54, 81, 108)		" "	H	cult

# **GOMPHRENA** $x = 9, 10$

<i>perennis</i>		18	Covas & C. 1946	—	Argentina
<i>pulchella</i>		18	" "	H	Brazil, Arg.
<i>martiana</i>		20	" "	—	Chile
<i>tomentosa</i>		30	" "	—	Brazil

## **64 BASELLACEAE**

# **ULLUCUS** $x = 12$

<i>tuberosus</i>	Ulluco	24, 36	Cárdenas & H. 1948	R	Andes
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# **BASELLA** $x = 12?$

<i>alba</i>	Malabar Nightshade	48	MacKenzie, T. 1937	V	Tropics
<i>rubra</i>	Indian Spinach	{ 44	Sugiura 1936a		
		60	MacKenzie, T. 1937	V	

## Group V

### GERANIALES

65-71

HS

### LYTHRALES

72-79

HST

### THYMELAEALES

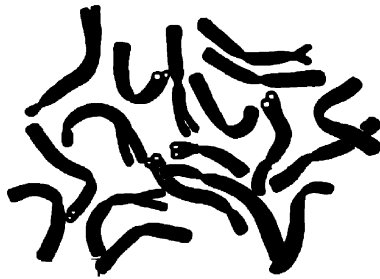
80-83

HST

### PROTEALES

84

ST



*Daphne mezereum*



## 65 LINACEAE

LINUM \*  $x = 8, 9, 10, 12, 14, 15, 16$

$x = 8, 9$

<i>viscosum</i>	16	Ray 1944	H	S. Europe
<i>grandiflorum</i> Flowering F.	16	" " Masima '47	H	Algeria
	16, 17	Martzenitzina 1927		
	18	Kikuchi 1926		
<i>hirsutum</i>	16	Ray 1944	H	S.E. Eur., Asia M
	18	Nagao 1941		
<i>catharticum</i>	16	Vilmorin & S. 1927b	M	Eur., S.W. Asia
	> 57	Martzenitzina 1927		

$x = 9$

<i>altaicum</i> & 8 spp.	18	Ray 1944	—	Siberia
<i>muelleri</i>	18	Kikuchi 1929	—	Sardinia
<i>perenne</i> Perennial F.	18	Ray 1944	H	Europe
<i>punctatum</i>	18	Martzenitzina 1927	—	Sicily
<i>austriacum</i> Austrian F.	18, 27	Freiburg 1933	H	Eur.—Persia
<i>alpinum</i>	18	Ray 1944	H	Eur., N. Afr.
	36	Nagao 1941		
<i>selaginoides</i>	36	Covas 1949b	—	Argentina
<i>suffruticosum</i>	72	Lorenzo-A. & G. '50	—	W. Medit.

<i>maritimum</i>	18	Nagao 1941	H	Medit.
	20	Vilmorin & S. '27b		
<i>campanulatum</i>	18, 28	Ray 1944	H	S. Europe
<i>narbonense</i> Narbonne F.	18	Kikuchi 1929	H	"
	28	Ray 1944		
<i>corymbiferum</i>	18	Martzenitzina 1927	—	N. Africa
	30	Kikuchi 1926		

$x = 10$

<i>gallicum</i>	20	Ray 1944	H	C. Eur., Medit.
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$x = 12, 14$

<i>capitatum</i>	24	Kikuchi 1926	H	S. Europe
	28	Ray 1944		
<i>arboresum</i>	28	" "	H	E. Medit.

$x = 15, 16$

<i>compactum</i>	30	Ray 1944	—	N. America
<i>medium</i>	30	" "	—	N.E.: N. Amer.
<i>nervosum</i>	30	Vilmorin & S. '27b	H	E. Europe
<i>rigidum</i>	30	Dillman 1933	—	W.: N. Amer.
<i>sulcatum</i>	30	" "	—	N. America
<i>virginianum</i>	30	Ray 1944	—	E.: N. Amer.

<i>africanum</i>	30	Masima 1947	—	N. Africa
	32	Sugiura 1940		
<i>bienne (angustifolium)</i>	32	Martzenitzina 1927	—	Eur., N. Afr.
	30, (60)	Masima 1947		
	28	Nagao 1941		
<i>flavum</i> Golden Flax	30	Ray 1944	H	S. Eur., Cauc.
	30-32	Martzenitzina 1927		
<i>usitatissimum</i> Flax, Linseed	30	Ray 1944	MOT	S.W. Asia, cult
	32	Kostoff 1940		

# LINUM (cont.)

*as crepitans*

*monogynum*

{ 30, 32 Emme & S. 1927  
30 (60) Masima 1947  
86? Kikuchi 1929

H New Zealand

# RADIOLA $x = 9$

*linoides* All-seed

18 Hagerup 1941b

— Temp. Eurasia

# REINWARDTIA $x = 10$

*trigyna*

20 Kishore 1951

H N. India

## 66 ZYGOPHYLLACEAE

### BALANITES $x = 9$

*aegyptica*

18 Pathak *et al.* 1949

O N. Afr., Arabia,  
Palestine

### FAGONIA $x = 9$

*cretica*

18 Negodi 1939

H W. Medit.

### ZYGOPHYLLUM $x = 11$

*fabago* Bean Caper

22 Warburg 1938

Sp Spain, N. Africa  
W. Asia

### PEGANUM $x = 12$

*harmala* Turkey Red

24 Warburg 1938

D C. Asia, Medit.

### TRIBULUS $x = 12$

*terrestris* Land Calthrops

{ 24 Negodi 1939  
48 Schnack & C. 1947

M(V) O.W. Tropics

### BULNESIA $x = 13$

*retamo*

26 Schnack & C. 1947

— Argentine

### LARREA $x = 13$

*divaricata*

26 Covas & S. 1946

— Argentine

*nitida*

26, 52 Covas 1949b

— Arg., Chile

*cuneifolia*

52 Covas & S. 1946

— Argentine

*tridentata*

Creosote Pl. 52, 104 Covas 1949b

HM Mex., Texas

### GUAIACUM $x = ?$

*officinale*

Lignum Vitae c. 26 E.K.J.\*

MRw W. Indies, C. Am.

## 67 GERANIACEAE

### PELARGONIUM\* $x = 8, 9, 10, 11$

$x = 8$

*infundibulum?*

16 Gauger 1937

*odoratissimum* Ger. Oil PL

16 Takagi 1928

HP Trop. Africa

$x = 9$

*acetosum*

18 Gauger 1937

(V) S. Africa

*hortorum*

18 Takagi 1928

H cult

*inquinans*

18 " "

H S. Africa

# **PELARGONIUM (cont.)**

<i>lateripes</i>	18	Warburg 1938	H	S. Africa
<i>monstrum</i>	18	Gauger 1937	—	"
<i>scandens</i>	18	" "	H	"
<i>zonale</i> Zonal G.	17, 18, 35, 36	" "	H(V)	<i>cult</i>
<i>endlicherianum</i>	36	Warburg 1938	—	Asia Minor
<i>peltatum</i> Ivy-leaved G.	36	Gauger 1937	H(V)	S. Africa
<i>glutinosum</i>	{ 36 90	" "	—	"
<i>roseum</i> Rose G.	72 (144)	Schtschavinskaja '37b	HP	"
<i>radula</i>	81	Takagi 1928	H	"
<i>denticulatum</i>	90	" "	H	"
<i>graveolens</i>	90	" "	HP	"

<i>x = 10, 11</i>				
<i>roessingense</i>	20	Gauger 1937	—	"
<i>violaceum</i>	20	" "	—	"
<i>ardens</i> & 6 spp.	22	" "	H	"
<i>glaucifolium</i>	22	Warburg 1938	H	<i>cult</i>
<i>punctatum</i>	22	" "	H	S. Africa

<i>amabile</i>	40, 44	Gauger 1937	—	"
<i>flavum</i>	40, 44	" "	—	"
<i>tomentosum</i>	44	" "	H	"
<i>quercifolium</i> Oak-leaved G.	44, 88	" "	H	"
<i>triste</i>	60	" "	H(R)	"
<i>decipiens?</i>	88			
<i>vitifolium</i>	88		H	

## **ERODIUM\* $x = 9, 10$**

<i>absinthoides</i> v. <i>amanum</i>	18	Warburg 1938	H	Maced., Asia M.
<i>ciconium</i>	{ 18 20	Gauger 1937 Warburg 1938	H	Medit.
<i>corsicum</i>	{ 18 20	Negodi 1937 Warburg 1938	H	Corsica, Sard.
<i>sibthorpiatum</i>	27	Gauger 1937	H	Maced., Asia M.
<i>chrysanthum</i>	36	Warburg 1938	H	Greece
<i>chamaedryoides</i> & 4 spp.	20	" "	H	Corsica
<i>glutinosum</i>	20	Andreas 1947	—	Medit.
<i>moschatum</i> Musk Clover	20	Gauger 1937	FoHP	Medit., S.W. Asia
<i>supracanum</i>	20	" "	H	Pyrenees
<i>texanum</i>	20	Baker unp.	—	W: N. Amer.
<i>cheilanthifolium</i>	{ 20 40	Gauger 1937 Warburg 1938	H	Spain, Morocco
<i>botrys</i>	40	Heiser & W. 1948	—	Medit.
<i>chium</i> & 3 spp.	40	Warburg 1938	—	"
<i>circutarium</i> Storksbill	40	Andreas 1947	FoH(V)	Medit., C. Asia
v. <i>immaculatum</i>	40	Baker unp.		
<i>obtusiplicatum</i>	40	"	—	N. Afr. (Calif., nat.)

## **GERANIUM\* $x = 9, 10, 11, 13, 16$ $x_1 = 23$ (annual) $x = 12, 14$ $x_2 = 25$ (perennial)**

<i>columbinum</i>	18	L. & L. 1944b	—	Eur., N. Asia
<i>lucidum</i>	20	Warburg 1938	H	" "
<i>dissectum</i>	22	L. & L. 1944b	HR	S. Europe
<i>pratense</i>	28	Warburg 1938	H	Eur., N. Asia
<i>sylvaticum</i> Wood Cranesbill	28	L. & L. 1944b	DH	" "

# GERANIUM (cont.)

<i>molle</i>	26	Warburg 1938	H	Eur., N. & S.W. Asia
<i>rotundifolium</i>	26	" "	—	Eur., N. Asia
<i>endressii</i>	28	" "	H	Pyrenees
<i>pyrenaicum</i>	28	" "	H	Eur., Asia M.
<i>pusillum</i>	26	Jackson 1951	H	Eur., Cauc., Him.
<i>affine</i> & 18 sp.	28	Warburg 1938	—	Altai
<i>bohemicum</i>	28	Dahlgren 1952	H	C. Europe
<i>nepalense</i>	28	Suzuka 1950	H	Asia Mtns.
<i>platypetalum</i>	28, 42 (3x)	Warburg 1938	H	Caucasus
<i>palustre</i>	28, 56	Gauger 1937	H	Eur., N. Asia
<i>purpureum</i>	32	Böcher 1947a	—	S. Eur., N. & E. Africa
<i>macrorrhizum</i>	{ 46	Warburg 1938	H	S. Europe
	87-93	Gauger 1937	—	S. Africa
<i>lanuginosum</i>	48	Dahlgren 1952	—	Abyssinia
<i>favosum</i>	50	Warburg 1938	H	Caucasus
<i>ibericum</i> & 2 spp.	56	" "	M	N. Temp.
<i>obertianum</i> Herb Robert	64	Böcher 1947a	H	Can. Is., Madeira
<i>anemonifolium</i>	{ 68	Warburg 1938	H	Eur., Cauc.
	128	Jackson unp.	—	
<i>sanguineum</i>	84	Warburg 1938	H	

# SARCOCAULON $x = 11$

<i>burmannii</i>	44	Gauger 1937	H	S. Africa
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# MONSONIA $x = 12$

<i>senegalensis</i>	24	Warburg 1938	—	Trop. Africa
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## 68 LIMNANTHACEAE

### LIMNANTHES\* $x = 10$

<i>alba</i>	10	Mason 1952	H	California
<i>douglasii</i> & 6 spp.	10	" "	H	"

## 69 OXALIDACEAE

### OXALIS\* $x = 5, 6, 7, 9, 11$

$x = 5$

<i>bupleurifolia</i> Brazil Bush O.	10	Heitz 1927	H	Brazil
<i>caprina</i>	20	" "	H	S. Africa
<i>versicolor</i>	{ 14?	" "	H	"
	30	Yamashita 1935	—	"
<i>hirta</i>	30	" "	H	"
<i>pentaphylla</i>	30	" "	H	"
<i>rhombifolia</i>	c. 80	Heitz 1927	—	Venezuela

$x = 6$

<i>corniculata</i> Creeping S.	24	Rutland 1941	HV	Cosmop.
<i>stricta</i> Yellow O.	24	Wulff 1937b	H	N. Temp.

$x = 7$

<i>deppii</i> Rosetta O. & 8 spp.	14	Heitz 1927	HRV	Mexico
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# OXALIS (cont.)

<i>origiesii</i>		14	Warburg 1938	H	Peru
<i>brasilensis</i>		{ 14	Heitz 1927	H	Brazil
		28	Yamashita 1935		
<i>asinina</i>		28	Warburg 1938	H	S. Africa
<i>lasiandra</i> & 3 spp.		28	Heitz 1927	H	Mexico
<i>violacea</i>	Violet W. S.	28	Yamashita 1935	H(V)	U.S.A.
<i>cernua</i>	Bermuda Buttercup	35	" "	HV	S. Africa
<i>rubra</i>		42	Heitz 1927	H	Brazil
<i>truncatula</i>		42	" "	—	S. Africa

<i>x = 9, 11</i>					
<i>valdiviensis</i>		18	Warburg 1938	H	Chile
<i>acetosella</i>	Wood Sorrel	22	Nakajima 1936	HMV	N. Temp.
<i>japonica</i>		44?	M. & S. 1935	—	Japan
<i>tuberosa</i>	Oka	{ 63-70	Kostoff <i>et al.</i> 1935	R	Andes
		66	Cárdenas & H. 1948		

<b>AVERRHOA</b>	<i>x = 12</i>				
<i>carambola</i>	Carambola	24	Krishnaswamy & R. 1949	F	India, China

## 70 TROPAEOLACEAE

<b>TROPAEOLUM</b>	<i>x = 6, 7</i>				
<i>peregrinum</i>	Canary Creeper	24	Warburg 1938	H	Peru
<i>majus</i>	Nasturtium	28	" "	H(V)	Peru, Brazil
<i>minus</i>	Dwarf N.	28	" "	H(V)	Peru
<i>peltophorum</i>		28	Sugiura 1931	H	Colombia, Ecuador
<i>tuberosum</i>	Per. N., Ysano	42	1936a, b	HR	Peru, Bolivia

## 71 BALSAMINACEAE

<b>IMPATIENS*</b>	<i>x = 7, 8, 9, 10</i>				
<i>x = 7</i>					
<i>amphorata</i>		14	Warburg 1938	H	W. Himalayas
<i>balfourii</i> & 2 spp.		14	Wulff, T. 1937	H	"
<i>balsamina</i>	Garden Balsam	14	Warburg 1938	H	Trop. Asia
<i>firmita</i>		14	Heitz & R. 1936	H	Madagascar
<i>scabrida</i>		14	F. H. Smith 1934	H	Himalayas
<i>x = 8</i>					
<i>holstii</i>		16	Warburg 1938	H	E. Tr. Africa
<i>oliveri</i>		16	Wulff 1933	H	"
<i>petersiana</i>		16	" "	H	W. Tr. Africa
<i>sultani</i>		16	Warburg 1938	H	Zanzibar
<i>x = 9, 10, etc.</i>					
<i>roylei</i>		{ 18	F. H. Smith 1934		
		18	W. Jackson unsp.	H	Himalayas
		20	Warburg 1938		
<i>biflora</i>	Jewel Weed	20	F. H. Smith 1934	H	N. America
<i>noli-tangere</i>	Touch-me-not	20	Winge 1925	H	Eur., Siberia
<i>pallida (aurea)</i>		20	F. H. Smith 1934	H	E: N. America

# IMPATIENS (cont.)

<i>parviflora</i>		{ 20 Schürhoff 1926 24 Wulff 1934a 26 Heitz & R. 1936	—	Turkestan, Siberia
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# HYDROCERA $x=8$

<i>triflora</i>	Water	16	Schürhoff 1931	DH	Trop. Asia
<i>(angustifolia)</i>	Balsam				

# 72 LYTHRACEAE

## PEPLIS $x=5$

<i>portula</i>	Water Purslane	10	Hagerup 1941b	V	Eur., W. As.
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## CUPHEA $x=6$

<i>cyanea</i>		12	Sugiura 1937b	—	Mexico
<i>lanceolata</i>		12	" "	—	"
<i>miniata</i>	Cigar Flower	18	" 1936b	H	"
<i>platicentra</i>		36	" "	—	"

## LYTHRUM $x=15$

<i>hyssopifolia</i>		20?	Tischler 1929	H	Temp.
<i>virgatum</i>		30	La Cour 1945*	H	Eur., N. Asia
<i>salicaria</i>		{ 30 Shinke 1929 50 L. & L. 1942 60 La Cour 1945*		H	N. Temp.
<i>myrtifolium</i>		60	" "	—	N. America

## NESAEA (LYTHRUM, DECODON) $x=15$

<i>triflorum</i>		60	La Cour 1945*	H	S. America
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## LAGERSTROEMIA $x=11, 25$

<i>flos-reginae</i>	Murata	44	Tjio 1948	HW	India
<i>indica</i>	Grape Myrtle	50	Bowden 1945a	H	S. Asia, N. Austr
<i>speciosa</i>		50	" "	H	Trop. Asia

# 75 PUNICACEAE

## PUNICA $x=8, 9?$

<i>granatum</i>	Pomegranate	{ 16 Tjio 1948 18, 19 Kostoff <i>et al.</i> 1935 18 Proos 1938	DFHM	cult (Persia)
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# 77 ONAGRACEAE (OENOTHERACEAE)

## CLARKIA (incl. GODETIA) $x=5, 7, 8, 9. x_1=12, 17. x_3=26$

$x=5$					
<i>virgata</i>		10	Lewis 1953b	H	California
$x=7$					
<i>amoena</i>		14	" "	H	N.W.: U.S.A.
<i>arcuata</i>		14	" "	H	California
<i>breweri</i>		14	" "	H	"
<i>concinna</i>		14	" "	H	"
<i>lassenensis</i>		14	" "	H	N.W.: U.S.A.

# CLARKIA\* (cont.)

<i>mildrediae</i>	14	Lewis 1953b	H	California
<i>rubicunda</i>	14	" "	H	"
<i>gracilis</i> (as <i>G. nutans</i> )	28+0-4B	Håkansson 1945	H	N.W. U.S.A.

$x = 8$

<i>biloba</i>	16	Lewis 1953a	H	California
<i>imbricata</i>	16	Lewis & L. 1953	H	"
<i>modesta</i>	16	Lewis 1953b	—	"

$x = 9$

<i>bottae</i>	18	" "	H	.
<i>cylindrica</i>	18	" "	H	..
<i>deflexa</i>	18	" "	H	"
<i>dudleyana</i>	18	" "	H	"
<i>epilobioides</i>	18	" "	—	Calif., Arizona
<i>lingulata</i>	18	" 1953a	H	California
<i>speciosa</i>	18	" 1953b	H	"
<i>unguiculata (elegans)</i>	18+0-6B	" 1951	H	"
<i>williamsonii</i>	18	" 1953b	H	"
as <i>G. viminea</i>	{ 18+0-3B	Håkansson 1949	H	"
<i>xantiana</i>	18	Lewis 1953b	H	"
<i>delicata</i>	36	" unsp.	H	"

$x_1 = (5 + 7)$

<i>pulchella</i>	24	Håkansson 1931	H	N.W. U.S.A.
<i>rhomboidea</i>	24	Lewis 1951	H	W: N. America

$x_1 = (8 + 9)$

<i>davyi</i>	34	Lewis & L. 1953	—	California
<i>similis</i>	34	Lewis & E. 1953	—	"
<i>tenella</i>	34	Hiorth 1941	H	Chile, Argentina

$x_3 = (9 + 17)$

<i>affinis</i>	52	Lewis & L. 1953	—	California
<i>prostrata</i>	52	" "	H	"
<i>purpurea</i>	52	" "	H	W: N. America

## ANOGR (OENOTHERA) $x = 7$

<i>pallida</i>	14	Johansen 1931d	HW	W: U.S.A.
<i>trichocalyx</i>	14	" 1929c	H	"

## OENOTHERA\* $x = 7$

<i>biennis</i> & 24 other spp.	{ 14	Darlington 1931b	HR	E: N. America
	{ 14	Cleland <i>et al.</i> 1950		N. America
<i>lamarckiana</i> Evening Primrose	14 (21, 28)	Darlington 1931b	H	Europe
<i>orgunensis</i>	14	Emerson 1938	—	N. America
<i>rosea</i>	14	Schwemmler 1924	H	Texas—Peru
<i>tetragona fraseri (glauca)</i>	28	" "	H	E: N. America
<i>perennis (pumila)</i>	28	Valcanover 1927	H	" "

## TARAXIA (OENOTHERA) $x = 7$

<i>heteranthera</i>	14	Johansen 1929c	H	W: U.S.A.
<i>ovata</i> Golden Eggs	14	" 1931a	H	California

## GAURA $x = 7, 9$

<i>biennis</i>	14	Bhaduri 1942	H	N. America
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<b>GAURA (cont.)</b>					
<i>coccinea</i>	14	Johansen 1929c	H	C: N. America	
<i>lindheimeri</i>	$\left\{ \begin{array}{l} 14 \\ 18 \end{array} \right.$	$\left\{ \begin{array}{l} \text{Bhaduri 1941} \\ \text{Suzuka \& K. 1949} \end{array} \right.$	H	Texas, Louisiana	
<b>JUSSIEUA <math>x = 8</math></b>					
<i>repens</i> Primrose Willow	16	Sinoto 1928b	DM	Tropics	
<b>CIRCAEA * <math>x = 11</math></b>					
<i>alpina</i>	22	L. & L. 1944b		N. Temp.	
<i>lutetiana</i> & 1 sp. Enchanter's Nightshade	22	Uddling 1929		Europe	
<b>GAYOPHYTUM <math>x = 11</math></b>					
<i>ramosissimum</i>	22	Johansen 1933a		W: N. America	
<b>LOPEZIA <math>x = 11</math></b>					
<i>coronata</i>	22	Täckholm 1914	H	Mexico	
<b>FUCHSIA <math>x = 11</math></b>					
<i>arborescens</i>	22	Haque 1952	H	Mexico	
<i>boliviana</i>	22	Warth 1925	H	Bolivia	
<i>colensoi</i>	22	" "	H	New Zealand	
<i>cordifolia</i>	22	Haque 1952	H	Mexico	
<i>corymbiflora</i>	22	Warth 1925	H	Peru	
<i>fulgens</i>	22	" "	H	Mexico	
<i>microphylla</i>	22	Haque 1952	H	"	
<i>procumbens</i>	22	Johansen 1929c	H	New Zealand	
<i>serratifolia</i>	22	Warth 1925	H	Peru	
<i>splendens</i>	22	" "	H	Mexico	
<i>magellanica</i> ( <i>macrostemma</i> )	22, 44	Johansen 1929c	H	Peru, Chile	
v. <i>gracilis</i>	44	Haque 1952			
<i>triphylla</i> (3x)	33	Warth 1925	H	W. Indies	
<i>coccinea</i>	44	" "	H	Brazil	
<i>lycioides</i> ( <i>rosea</i> )	44	" "	H	Chile	
Garden forms	22, 55, 66, 77	Haque 1952	H	<i>cult</i>	
<b>ZAUSCHNERIA <math>x = 15</math></b>					
<i>cana</i> ( <i>microphylla</i> )	30	Clausen <i>et al.</i> 1940	H	California	
<i>garrettii</i>	30				
<i>septentrionalis</i>	30				
<i>latifolia</i>	60				
<i>californica</i> Calif. Fuchsia	60		H		
v. <i>angustifolia</i>	60, c. 75				
<b>CHAMAENERION (EPILOBIUM) <math>x = 18</math></b>					
<i>angustifolium</i> Rosebay	36	L. & L. 1948	H	N. Hemisphere	
Willow-herb					
<i>latifolium</i>	72			Sib., N.W. Amer.	
<b>EPILOBIUM* <math>x = 18</math></b>					
<i>anagallidifolium</i> ( <i>alpinum</i> )	36	Bøcher & L. 1950	H	N. Hemisphere	
<i>hirsutum</i> Codlins and Cream	36	L. & L. 1942	H	Europe	
<i>palustre</i> Marsh W. H.	36	" 1948		N. Hemisphere	
<i>pedunculare</i> & 19 spp.	36	Hair 1942		New Zealand	
<b>TRAPA <math>x = ?</math></b>					
<i>natans</i> Water Chestnut	c. 36	Palmgren 1943	N	Eur., Asia	

## 78 HALORAGACEAE

### MYRIOPHYLLUM $x = 7$

<i>exalbenscens</i>	14	Löve 1954	—	N. America
<i>alterniflorum</i>	14	Scheerer 1939	—	Eur., Greenland
<i>verticillatum</i> Water Milfoil	28	„ 1940	H	N: N. Amer., Eur., Asia
<i>spicatum</i>	28	Löve 1954	—	Eurasia

### GUNNERA $x =$

<i>cnlensis</i>	c. 24	Winge 1917	H	Andes
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### HIPPURIS $x = (8) 16$

<i>vulgaris</i> Mare's Tail	32	Winge 1917		N. Temp., Patag.
	32	L. & L. 1948		

## 79 CALLITRICHACEAE

### CALLITRICHE $x = 3, 5$

<i>autumnalis</i> Aut. Starwort ( <i>hermaphroditica</i> )	6	Jørgensen 1923	—	N. Eur., Iceland
<i>truncata</i>	6	Dodds, T. 1937		W. & S. Europe
<i>polymorpha</i>	12	L. & L. 1948		N. & C. Eur., Cauc., Sib.
<i>stagnalis</i>	10, 20	Jørgensen 1923		S. Eur., N. Afr.
<i>verna</i>	20	Sokolovskaja 1932		Eur., Sib., N. Afr., N. Amer.
<i>intermedia</i> ( <i>hamulata</i> )	38	Schotsman 1954	—	Eur., Cauc., Palest., Mor.

## 81 THYMELAEACEAE

### DAPHNE $x = 9$

<i>alpina</i> Alpine D.	18	Strasburger 1909	H	S. & C. Europe
<i>bhola</i> Nepal Paper Pl. ( <i>cannabina</i> )	18	Venkateswarlu 1946	T	India
<i>cneorum</i> Garland Fl.	18	Fuchs 1938	H	S. & C. Europe
<i>kiusana</i>	18	Osawa 1913	H	Japan
<i>laureola</i> Spurge Laurel	18	Fuchs 1938	H	C., S. & W. Eur., W. Asia
<i>mezereum</i> February D.	18	Maude 1940	HM	Eur., N. Asia
<i>yezoensis</i>	18	M. & S. 1935	—	Japan
<i>glomerata</i>	18	S. & S. 1940	H	Cauc.
<i>odora</i> Winter D.	{ 28 30	{ Takenaka 1931 Yamaha, K. 193.	HP	China, Japan

### WIKSTROEMIA $x = 9$ (Polyploids Apomictic)

<i>canescens</i> Paper Bark T.	18	Venkateswarlu 1946	T	Him., China, Cey
<i>viridiflora</i> Philippine P.B.T.	{ 27 52	{ Fagerlind 1940 Winkler 1906	T	S.E. Asia

### EDGEWORTHIA $x = 9$

<i>papyrifera</i> Paper Bush	36	Sugiura 1936a	HT	China, Jap., Him
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**PIMELEA\*  $x = 9$**

<i>cinerea</i> & 10 spp.	36	Cruickshank 1953	H	Australia
<i>humilis</i>	72	" "	H	Austr., Tasm.
<i>lindleyana</i>	90	" "	H	Tasmania
<i>drupacea</i>	108	" "	H	Vict., Tasm.

## 83 NYCTAGINACEAE

**BOUGAINVILLEA  $x = 17$**

<i>glabra</i>	20	D. C. Cooper 1931	H	Brazil
garden forms	34	Wilson 1947	H	cult
<i>spectabilis</i>	—		H	Brazil
garden forms	34	" "	H	cult

**MIRABILIS  $x = 29$**

<i>jalapa</i>	58	Showalter 1935	HM	Trop. Amer.
<i>longiflora</i>	58	" "	—	Mexico
<i>multiflora</i>	58	" "	H	

**OXYBAPHUS (ALLIONIA)  $x = 29$**

<i>nyctagineus</i>	58	Bowden 1945b	H	S: U.S.A.
<i>viscosus</i>	58	" "		Peru

## 84 PROTEACEAE

**PERSOONIA\*  $x = 7$**

<i>ferruginea</i>	14	H. P. Lancaster unpub.	H	N.S.W.
<i>lanceolata</i>	14	" "	H	"
<i>linearis</i> & 7 spp	14	" "	H	" Vict.

**BANKSIA  $x = 7$**

<i>ericifolia</i>	28	H. P. Lancaster unpub.	H	Australia
<i>integrifolia</i>	28	" "	H	
<i>latifolia</i>	28	" "	H	
<i>serrata</i>	28	" "	H	
<i>spinulosa</i>	28	" "	H	

**BRABEUM  $x = 7$**

<i>stellatifolium</i>	28	de Vos 1943		S. Africa
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**CENARRHENES  $x = 7$**

<i>nitida</i>	28	H. P. Lancaster unpub.		Australia
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**DRYANDRA  $x = 7$**

<i>floribunda</i>	28	H. P. Lancaster unpub.	H	W. Australia
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**LAMBERTIA  $x = 7$**

<i>formosa</i>	28	H. P. Lancaster unpub.	H	W. Australia
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**MACADAMIA  $x = 7$**

<i>terniifolia</i> Queensland Nut	28 (56)	Urata unpub.	HN	Queensland
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**XYLOMELUM  $x = 7$**

<i>pyriforme</i>	28	H. P. Lancaster unpub.	H	N.S.W.
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<b>GREVILLEA*</b> $x = 10$				
<i>banksii</i>	20	H. P. Lancaster unpub.	H	Queensland
<i>glabrata</i>	20	" "	H	W. Australia
<i>robusta</i> Silky Oak	20	" "	HSh	N.S.W.
& 22 spp.	20	" "	H	Australia
<b>HAKEA</b> $x = 10$				
<i>acicularis</i>	20	H. P. Lancaster unpub.	H	Austr., Tasm.
<i>dactyloides</i>	20	" "	H	W. Australia
<b>SYMPHYONEMA</b> $x = 10$				
<i>montanum</i>	20	H. P. Lancaster unpub.		Australia
<i>paludosum</i>	20	" "		"
<b>AULAX*</b> $x = 11$				
<i>cnorifolia</i> & 2 spp.	22	de Vos 1943	H	S. Africa
<b>CONOSPERMUM</b> $x = 11$				
<i>ericifolium</i>	22	H. P. Lancaster unpub.	H	N.S.W.
<i>longifolium</i>	22	" "	H	"
<b>LOMATIA</b> $x = 11$				
<i>silaiifolia</i>	22	H. P. Lancaster unpub.	H	E. Australia
<b>STENOCARPUS</b> $x = 11$				
<i>sinuatus</i>	22	H. P. Lancaster unpub.	H	E. Australia
<b>TELOPEA</b> $x = 11$				
<i>speciosissima</i> Waratah	22	H. P. Lancaster unpub.	H	N.S.W.
<b>LEUCOSPERMUM*</b> $x = 12$				
<i>reflexum</i> & 3 spp.	24	de Vos 1943	H	S. Africa
<b>MIMETES</b> $x = 12$				
<i>lyrigera</i>	24	de Vos 1943		S. Africa
<b>PARANOMUS</b> $x = 12$				
<i>spicatus</i>	24	de Vos 1943	H	S. Africa
<b>PROTEA*</b> $x = 12$				
<i>grandiflora</i> & 9 spp.	24	de Vos 1943	H	S. Africa
<b>SERRURIA</b> $x = 12$				
<i>artemisiifolia</i>	24	de Vos 1943	H	S. Africa
<b>LEUCADENDRON</b> $x = 13$				
<i>plumosum</i>	26	de Vos 1943	H	S. Africa
<i>argenteum</i> Silver Tree	26-28	" "	HSh	"
<b>ISOPOGON</b> $x = 13$				
<i>anethifolius</i>	26	H. P. Lancaster unpub.	—	Australia
<b>PETROPHILA</b> $x = 13$				
<i>pulchella</i>	26	H. P. Lancaster unpub.	H	Australia



## Group VI

### DILLENIALES

85, 86  
(H)ST

### PITTOSPORALES

88–90  
(H)ST

### TAMARICALES

97–99  
HST

### CUCURBITALES

103–106  
H(S)

### CORIARIALES

87  
S

### BIXALES

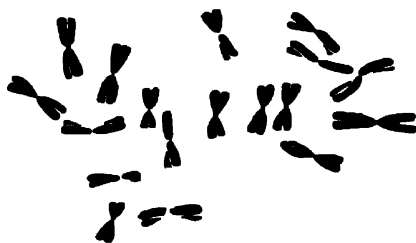
91–96  
HST

### PASSIFLORALES

100–102  
HST

### CACTALES

107  
HS



*Cistus corbariensis*



## 85 DILLENIACEAE

<b>HIBBERTIA</b> $x = 8$				
<i>diffusa</i>	16	A. T. Hotchkiss unp.	—	E. Australia
<i>scandens (volubilis)</i>	16	" "	H	
<i>linearis</i>	16, 32	" "	—	
<i>amplexicaulis</i>	32	" "	—	W. Australia
<i>saligna</i>	c. 64	" "	—	E. Australia

<b>DILLENIA</b> $x = 8$				
<i>ovata</i>	32	Tixier 1953		Viet-Nam

<b>WORMIA</b> $x = 13$				
<i>suffruticosa</i>	Marsh Simpoh	26 Paetow 1931	H	Malaya

## 87 CORIARIACEAE

<b>CORIARIA</b> $x = ?$				
<i>myrtifolia</i>	c. 80	Bowden 1940a	H	S. Eur., N.W. Afr.

## 88 PITTOSPORACEAE

<b>PITTOSPORUM</b> $x = 12$				
<i>tobra</i>	Japanese P.	24 Schürhoff 1929a	H	Jap., China

## 91 BIXACEAE

<b>BIXA</b> $x = 7, 8$				
<i>orellana</i>	Annatto	{ 14 EKJ* 16 Simmonds 1954	D	S. America

## 93 FLACOURTIACEAE

<b>FLACOURTIA</b> $x = 11$				
<i>ramontchi</i>	Uguessa	22 Bhaduri & K. 1949	FH	India, Malaya
<i>seplaria</i>		{ 22 " " 22 Tjio 1948	FH	" "

<b>IDESIA</b> $x = 11?$				
<i>polycarpa</i>	c. 44	Corti 1948	H	China, Japan

<b>HYDNOCARPUS</b> $x = 11, 12$				
<i>ilicifolia</i>		22 EKJ*	MW	Mal., Camb. Java
<i>anthelmintica</i>	Ch. Chaulmoogra	24 " "	MW	Indo-China
<i>laurifolia</i>	Marotti Oil	48 Hamacher 1947	M	S. India

## 95 CANELLACEAE

<b>CAPSICODENDRON</b> $x = 13$				
<i>dinisii</i>	26	Occhioni 1945	—	Brazil

## 96 CISTACEAE

### HELIANTHEMUM\* $x = 5, 11$

<i>squamatum</i>	10	Coutinho & L.-A. '48	—	W. Medit.
<i>apenninum</i>	20	Proctor 1955	H	W. & S. Europe,
as <i>polifolium</i> , <i>pulverulentum</i>	20	Bowden 1940a		Asia Minor
<i>glaucum</i>	20	" "	H	Medit.
<i>ledifolium</i>	20	Proctor 1955	H	"
<i>kahiricum</i> & 3 spp.	20	Atsmon unp.	H	N. Afr., S.W. As
<i>chamaecistus</i> Rock Rose	20	Proctor 1955	H	Eur., S.W. Asia
as <i>vulgare</i>	32?	Bowden 1940a		
<i>alpestre</i>	20	" "	H	S. Eur. Mtns.,
	22	Proctor 1955		Asia Minor
<i>nummularium</i> ( <i>paniculatum</i> )	20	Lorenzo-Andreu 1951	H	W. Medit.
	22	Coutinho & L.-A. '48		
<i>canum</i>	22	Proctor 1955	H	W. & S. Eur.,
				S.W. Asia
<i>lunulatum</i>	22	" "	H	Italy
<i>oelandicum</i>	22	" "	H	Arctic, N. Eng.

### CROCANTHEMUM (HELIANTHEMUM) $x = (5) 10$

<i>canadense</i>	20	Bowden 1940a	H	N.E: U.S.A.
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### TUBERARIA (HELIANTHEMUM) $x = 6, 7$

<i>vulgaris</i>	14	Proctor 1955	H	W. Medit.
<i>guttata</i>	36	" "	H	W. Eur., Medit.
	48	Chiarugi 1925		

### FUMANA (HELIANTHEMUM) $x = 8$

<i>arabica</i>	32	Atsmon unp.	—	Medit., Pers.
<i>laevipes</i>	32	Proctor 1955	H	W. Medit.
<i>thymifolia</i>	2	" "	—	Medit., Pers.

### HALIMIUM $x = 9$

<i>atriplicifolium</i>	18	Chiarugi 1925	H	Spain
<i>halimifolium</i>	18	Proctor 1955	H	W. Medit.
<i>lasianthum</i>	18	Snoad unp.	H	S. Spain, Port.
<i>libanotis</i>	18	Rodrigues 1950	H	W. Medit.
<i>ocymoides</i>	18	Proctor 1955	H	Iber. Penin.
<i>umbellatum</i>	18	" "	H	W. Eur., Medit.

### CISTUS $x = 9$

<i>albidus</i> Rock Rose	18	Bowden 1945a	H	Medit.
<i>crispus</i>	18	Dansereau 1940	H	S.W. Europe
<i>heterophyllus</i>	18	" "	—	Algeria
<i>hirsutus</i>	18	La Cour 1945*	H	Iber. Penin.
<i>ladaniferus</i> Ladanum Pl.	18	Chiarugi 1937	HMP	S.W. Europe
<i>laurifolius</i>	18	Bowden 1945a	H	Medit.
<i>monspeliensis</i>	18	La Cour 1945*	H	S. Europe
<i>parviflorus</i>	18	Dansereau 1940	H	E. Medit.
<i>populifolius</i>	18	Chiarugi 1937	M	W. Medit.
<i>rosmarinifolius</i>	18	La Cour 1945*	H	"
<i>salvifolius</i>	18	Dansereau 1940	H	Medit.
<i>symphitifolius</i>	18	Chiarugi 1937	M	Teneriffe
<i>villosus</i> Cretan R. R.	18	" 1925	H	Medit.
<i>varius</i> ( <i>crisp.</i> × <i>monspel.</i> )	18	Snoad unp.	H	Algeria, France
<i>corbariensis</i> ( <i>popul.</i> × <i>salv.</i> )	18	La Cour 1945*	H	Medit.

# CISTUS (cont.)

<i>florentinus</i> (monspel. × salv.)	18	Snoad unp.	H	Medit.
<i>purpureus</i> (ladanif. × vill.)	18	.. ..	H	cult

# HALIMIOCISTUS (HALIMIUM × CISTUS) $x = 9$

<i>ingwersenii</i>	18	Snoad unp.	H	cult
<i>sahucii</i>	18	.. ..	H	France, cult

## 97 FRANKENIACEAE

### FRANKENIA $x = 5?$

<i>pulverulenta</i>	20	Sugiura 1937b	H	Med., Ind., S. Afr.
<i>hirsuta</i>	30	Castro & F. 1946	—	Eur., S.W. Asia, S. Africa

## 98 TAMARICACEAE

### TAMARIX\* $x = 12$

<i>aphylla</i> (articulata)	Thaia, Athel T.	24	Bowden 1945b	SuTW	W. Asia
<i>ericoides</i>		24	Sharma 1939	T	India
<i>gallica</i>	Tamarisk & 4 spp.	24	Bowden 1940a	HSbT	Eur., N. Afr.

### MYRICARIA $x = 12$

<i>germanica</i>	False Tamarisk	24	Frisendahl 1912	H	N. Temp.
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## 99 FOUQUIERACEAE

### FOUQUIERA $x = 8$

<i>burragei</i>		16	Johansen 1936	—	N. America
<i>peninsularis</i>		16	.. ..	—	California
<i>splendens</i>	Ocotillo	16	.. ..	HO	S.W. U.S.A.

## 101 PASSIFLORACEAE

### PASSIFLORA (TACSONIA) $x = 6, 9, 10$

$x = 6$

<i>brynoides</i>		12	Bowden 1945b	—	Mexico
<i>capsularis</i>		12	.. ..	H	Trop. Amer.
<i>pulchella</i>		12	Storey 1950	—	Venezuela
<i>suberosa</i>		24, 36	.. ..	FH	Trop. S. Amer.
<i>lutea</i>	Yellow P. Fl.	84	Bowden 1945b	FH	W. Indies

$x = 9$

<i>caerulea</i>	Blue Crown P. Fl.	18	Nakajima 1931	FH	Brazil
<i>edulis</i>	Passion Fruit	18	Storey 1950, EKJ*	F	Trop. S. Amer.
<i>incarnata</i>	May Pop	18	.. ..	FH	S.E. U.S.A.
<i>laurifolia</i>	Water Lemon	18	.. ..	FH	Trop. Amer.
<i>ligularis</i>	Sweet Gr.	18	.. ..	FH	Peru
<i>maliformis</i>	Sweet Calabash	18	.. ..	FH	Trop. Amer.
<i>manicata</i>		18	.. ..	H	Peru, Colo., Venez.

# PASSIFLORA (cont.)

<i>mixta</i>		18	La Cour 1952	H	Andes
<i>mollissima</i>		18	Storey 1950	H	"
<i>quadrangularis</i>	Giant	18	" " EKJ*	FH	Trop. Amer.
	Granadilla				
<i>seemannii</i>		18	" "	—	C. America
<i>subpeltata</i>		18	" "	H	Mex.—Venez.
<i>virifolia</i>		18	" "	H	C. America
<i>allardii</i>		18	La Cour 1951b	H	cult
<i>(caerulea</i> × <i>quadrangularis</i> )					

$x = 9, 10$

<i>gracilis</i>		18	La Cour 1952	H	Venezuela
		20	Bowden 1945b		
		18	EKJ*	FHM	Trop. S. Amer.
<i>foetida</i>	Wild P. Fr.	20	Storey 1950		O.W. Tropics, nat.
		20	Nishiyama & K. 1942		
		22	Bowden 1945b		
<i>v. gossypifolia</i>		20	Storey 1950		

# 103 CUCURBITACEAE

## CUCUMIS $x = 7, 12$

$x = 7$					
<i>sativus</i>	Cucumber	14	Heimlich 1927	(M)V	cult, India
		(28)	Shifriss 1942		
<i>trigonus</i>	Jackal's C.	14	EKJ*	M	India, Turkest
$x = 12$					
<i>agrestis</i>	Wild Melon	24	Araratian 1939	F	Armenia
<i>chinensis</i>		24	" "	F	China
<i>microcarpus</i>		24	" "	—	Armenia
<i>anguria</i>	W.I. Gherkin	24	Kozhuchow 1930	V	Trop. Amer.
<i>dipsaceus</i>	Teasel Gourd	24	" "	V	Trop. Afr., Ar
<i>flexuosus</i>	Snake C.	24	" "	V	Tropics
<i>lyratus</i>		24	" "	V	Tanganyika
<i>melo</i>	Melon	24	Yamaha & S. 1936	NVF	cult, Afgh.
	Cantaloupe	(48)	Shifriss 1941		
<i>metuliferus</i>	Horned C.	24	Kozhuchow 1930	V	S. Africa
<i>myriocarpus</i>	Gooseberry G.	24	" "	V	"
<i>odoratissimus</i>		24	" "	F	Tropics
<i>prophetarum</i>	Globe Cucumber	24	" "	V	Ar., Tr. Afr.
<i>sacleuxi</i>		24	" "	V	Zanzibar

## ACTINOSTEMMA $x = 8$

<i>lobatum</i>		16	Kurita 1939	—	Japan
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## CYCLANTHERA $x = 8$

<i>explodens</i>		32	Resende 1937	—	Ecuador
<i>pedata</i>		32	" "	—	Mexico

## ECHINOCYSTIS (MICRAMPELIS) $x = 8$

<i>fabacea</i>		32	McKay 1931	V	California
<i>oregona</i>		32		—	W: N. America
<i>macrocarpa</i>		32		—	California
		64	Whitaker 1950	—	

<b>THLADIANTHA</b> $x=9$					
<i>dubia</i>		18	Kozhuchow 1934	V	China
<b>BRYONIA</b> $x=10$					
<i>alba</i>	White Bryony	20	Brabec 1954	M	W. Medit.
<i>dioica</i>	Red Bryony	20	" "	M	Eur., Medit.
<b>CITRULLUS</b> $x=11$					
<i>colocynthis</i>	Colocynth	22	Whitaker 1933b	M	Africa
<i>vulgaris</i>	Water Melon	22	Kozhuchow 1925	FN	Trop. Africa
<b>GYMNOPETALUM</b> $x=11$					
<i>cochinchinense</i>		22	Islam & S. 1951	—	Trop. Asia
<b>LAGENARIA</b> $x=11$					
<i>vulgaris</i>	Bottle Gourd or Calabash	22 (44)	McKay 1931 Sinnott <i>et al.</i> 1939	V	<i>cult</i> , Afgh.
<b>MOMORDICA</b> $x=11, 14$					
<i>balsamina</i>	Balsam Apple	22	McKay 1931	MV	Tropics
<i>charantia</i>	Bitter Gourd	22	Yamaha & S. 1936	VVit	"
<i>dioica</i>		28	Richharia & G. 1953	V	India
<b>TRICHOSANTHES</b> $x=11$					
<i>anguina</i>	Snake Gourd	22	McKay 1931	V	Trop. Asia
<i>dioica</i>	Patol	22	Bhaduri & B. 1947	V	India
<i>japonica</i>		22	Sinoto 1929	V	Trop. Asia
<i>multiloba</i>		22	Kurita 1939	—	Japan
	(♂, 20+ XY)				
<i>shikokiana</i>		22	Kurita 1939	—	
<i>cucumeroides</i>		{ 44	" "	V	
		44	Yamaha & S. 1936		
<i>palmata</i>		44	Rangaswami 1949	—	Trop. Asia
<b>MELOTHRIA</b> $x=11, 12$					
<i>japonica</i>		22	Nakajima 1931	V	Japan
<i>maderaspatana</i>		22+0-2B	Kumar & V. 1951		Trop. As. & Afr.
<i>leiosperma</i>		24	" "		India
<i>punctata (abyssinica)</i>		24	McKay 1931	V	S. Africa
<i>scabra</i>		24	Kozhuchow 1934	V	Mexico
<i>heterophylla</i>		48	Kumar & V. 1951		Trop. Asia
<i>perpusilla</i>		48	" "		India, Malaya
<b>CUCURBITA</b> $x=10, 12$					
<i>maxima</i>	Winter or Turban Squash	{ 24	Rau 1929	OV	Peru, <i>cult</i>
		40	Pearson <i>et al.</i> 1951		
<i>moschata</i>	Pumpkin, Cushaw or Toonai	{ 24	Yamaha & S. 1936		
		40	Ruttle 1931b	V	Mexico, <i>cul</i>
		40	Pearson <i>et al.</i> 1951		
		48	Kozhuchow 1925		
<i>pepo</i>	Summer Squash or Vegetable Marrow	{ 40	Erwin & H. 1930	OMV	S.W. Asia
		40	Castetter 1930		<i>cult</i>
		(80)	EKJ*		
<i>v. pomiformis</i>		40	Kozhuchow 1925		
<i>v. citrullina</i>		42	" "		
<i>andrea</i>		40	Covas & S. 1946	V	Uruguay

# CUCURBITA (cont.)

<i>digitata</i>		40	McKay 1931	V	N. Mexico
<i>ficifolia</i>	Malabar Gourd	40	" "	V	E. Asia
<i>foetidissima</i>	Calabazilla	40	" "	V	Mexico
<i>palmata</i>		40	" "	V	California

# IBERVILLEA (MAXIMOWICZIA)

<i>lindheimeri</i>		22	MacKay 1930		Texas
sp.		24	" "		

# BENINCASA $x = 12$

<i>hispida</i>	Wax or White	24	Resende 1937	MV	Trop. Asia
( <i>cerifera</i> )	Gourd	24	Whitaker 1933b		

# COCCINIA (CEPHALANDRA)

<i>hirtella</i>		24	McKay 1930	V	S. Africa
<i>indica</i>	Ivy Gourd	24	Chakravorti 1948	FV	Trop Asia
( <i>cordifolia</i> )		24	Kumar & V. 1952		
		(♂ 22 + XY, ♀ 22 + XX)			
(3x)		36	Kumar & V. 1952		
		(♂ 33 + XXXY)			

# ECBALLIUM $x = 12$

<i>elaterium</i>	Squirting C.	24	Mackay 1930	H	Medit.
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# SECHIUM $x = 12$

<i>edule</i>	Chayote, Chocho	24	Sugiura 1930	HVT	W. Indies
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# SICYOS $x = 12$

<i>angulatus</i>	Bur Cucumber	24	Kozhuchow 1934	HV	E. U.S.A.
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# CUCURBITELLA $x = 13$

<i>asperata</i>		26	Covas & S. 1946	—	Argentine
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# LUFFA $x = 13$

<i>acutangula</i>	Dishcloth G.	26	McKay 1930	ToV	Old World
<i>cylindrica</i>	Loofah	26	Yahama & S. 1936	ToTV	O.W. Trop.
v. <i>gigantea</i>		26	McKay 1930		cult

## 104 BEGONIACEAE

# BEGONIA $x = ?$

<i>picta</i>		22	White <i>et al.</i> 1946	H	Himalayas
<i>heracleifolia</i>		24	Hamel 1937	H	Mexico
<i>hirsuta</i>		24	Matsuura & O. 1936	H	Guiana
<i>nelumbiifolia</i>		26	Hamel 1937	H	Mexico
<i>haageana</i>		48	M. & O. 1936	H	Brazil
		24	Bowden 1945a		
<i>evansiana</i>		26	White <i>et al.</i> 1946	H	Ch., Jap., Mal
		24	Hamel 1937		
<i>incana</i>		28	Mereminski 1936	H	Mexico
<i>socotrana</i>		28	M. & O. 1936	H	Socotra
<i>carminata</i>		42	" "	H	cult
<i>coccinea</i>		42	" "	H	S. America
<i>cucullata</i>		56	Bowden 1945a	—	Brazil
<i>maculata</i>		56	M. & O. 1936	H	"

# BEGONIA (cont.)

<i>gracillis</i>	84	M. & O. 1936	H	Mexico
<i>metallica</i>	70	" "	H	Brazil
<i>schmidtiana</i>	{ 32 26?	" 1943 Pastrana 1932	H	"
<i>dichotoma</i>	36	Hamel 1937	H	Venezuela
<i>longipes</i>	36	" "	H	Mexico
<i>vitifolia</i>	36	" "	H	Brazil
<i>albo-picta</i>	54	M. & O. 1936	H	"
<i>angularis</i>	54	Hamel 1937	H	"
<i>wilsonii</i>	54	M. & O. 1936	H	Szechuan
<i>dregei</i>	26	M. & O. 1936	H	S. Africa
<i>argenteo-guttata</i>	52	" "	H	cult
<i>margaritae</i>	52	" "	H	"
<i>ulmifolia</i>	30	M. and O. 1943	H	Venezuela
<i>venosa</i>	30	Hamel 1937	H	Brazil
<i>fuchsioides</i>	60	M. & O. 1936	H	Mexico
<i>kotoensis</i>	60	" 1943	—	Japan
<i>semperflorens</i>	33, 36, 60, 66	M. & O. 1943	H	Brazil, cult
<i>rex</i>	32, 33, 34 42, 43, 44	" "	H	Himalayas, cult

# 105 DATISCEAE

## DATISCA x = 11

<i>cannabina</i>	22	Sinoto 1929	H	S.W. Asia, Him.
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# 106 CARICACEAE

## CARICA x = 9

<i>candamarcensis</i>	Mountain Papaw	18	Heilborn 1921	F	Trop. Am.
<i>cauliflora</i>		18	Storey 1941	—	Venezuela
<i>chrysopetala</i>		18	" "	—	Ecuador
<i>dodecaphylla</i>		18	Kumar & S. 1944	—	Brazil
<i>peltata</i>		18	Storey 1941	—	Nicaragua
<i>pentagona</i>		18	" "	—	Ecuador
<i>pubescens</i>		18	Kumar & A. 1942a	—	Guatemala
<i>quercifolia</i>		18	EKJ*	—	S. America
<i>papaya</i>	Papaya, "Papaw"	{ 18 36	Eichhorn 1937b Hofmeyer 1945	FM	Trop. America

# 107 CACTACEAE

## TRIBE I: PERESKIEAE

## PERESKIA x = 11

<i>aculeata</i>	Barbadoes Gooseberry	22	Katagiri 1952	F	Mexico, W.I.
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<b>PERESKIA</b> (cont.)				
<i>saccharosa</i>	22	Katagiri 1952	H	Argentine, Para.
<i>tampicana</i>	22	Remski 1954	—	Mexico

### TRIBE II: OPUNTIEAE

<b>OPUNTIA*</b> $x = 11$ (Apomixis)				
<i>basilaris</i>	22	Takagi 1938	—	Mexico
<i>brasiliensis</i>	22	Stockwell 1935	—	S. America
<i>chlorotica</i>	22	" "	—	N. America
<i>microdasys</i> & 4 spp.	22	Katagiri 1952	H	Mexico
<i>repens</i>	22	Bowden 1945a	—	Puerto Rica
<i>santa-rita</i>	22	Stockwell 1935	—	S: U.S.A.
<i>compressa</i> (opuntia)	{ 22 (44)	Bowden 1945a	—	N. America
	44	Katagiri 1952		
<i>polyacantha</i>	{ 22	M. & S. 1935	—	"
	44, c. 66	Stockwell 1935		
<i>monacantha</i> (vulgaris)	33	Katagiri 1952	F	S. America
<i>leucotricha</i>	44	" "	H	Mexico
<i>salmiana</i>	44	" "	H	S. America
<i>tomentosa</i>	44	" "	H	Mexico
<i>impedita</i>	44 (88)	Bowden 1945a	—	Florida
<i>dillenii</i> Prickly Pear	66	Carpio 1952	FFo <sub>1</sub>	Sub.-Trop. Amer
<i>discata</i>	c. 66	Stockwell 1935	—	Arizona
<i>fragilis</i>	66	Bowden 1945a	—	W: U.S.A.
<i>phaeacantha</i>	c. 66	Stockwell 1935	—	Mex., Tex.
<i>subulata</i>	66	Katagiri 1952	H	Chile, Argentine
<i>elongata</i>	66, 88	" "	—	Mexico
<i>diademata</i>	{ 22	Takagi 1938	H	Argentine
	88	Katagiri 1952		
<i>ficus-indica</i>	88	Carpio 1952	F	S. America
<i>cylindrica</i>	110	Katagiri 1952	H	Peru, Ecuador

<b>PTEROCACTUS</b> $x = 11$				
<i>tuberosus</i>	22 (44)	Schnack & C. 1947	—	Argentine

<b>CONSOLEA</b> $x = 11$				
<i>rubescens</i>	132	Katagiri 1952	H	W. Indies

### TRIBE III: CEREEAE

All genera in this tribe have  $x = 11$  and nearly all species have 22 or 44 chromosomes.

<b>ACANTHOCEREUS</b>				
<i>pentagonus</i>	22	Beard 1937	—	Trop. America

<b>ASTROPHYTUM*</b>				
<i>asterias</i>	22	Beard 1937	H	Mexico
<i>capricorne</i> & 2 spp.	22	Katagiri 1952	H	"

<b>BORZICACTUS</b>				
<i>aurivillius</i>	22	Katagiri 1952	H	Peru

<b>CARNEGIEA</b>				
<i>gigantea</i>	22	Stockwell 1935	FW	Ariz., Calif.

<b>CEREUS *</b>				
<i>peruvianus</i>	22	Takagi 1938	H	Brazil, Argentine
<i>tetragonus</i> & 1 sp.	22	Katagiri 1952	—	Brazil
<b>CORYPHANTHA</b>				
<i>runyonii</i>	22	Beard 1937	H	Texas
<b>DOLICHOTHELE</b>				
<i>longimamma</i>	22	Katagiri 1952	H	Mexico
<b>ECHINOCACTUS</b>				
<i>grusonii</i>	22	Katagiri 1952	H	"
<b>ECHINOFOSSULOCACTUS</b>				
<i>crispatus</i>	22	Katagiri 1952	H	Mexico
<i>grandicornis</i>	c. 22	Beard 1937	H	"
<b>ECHINOPSIS *</b>				
<i>tubiflora</i> & 2 spp.	22	Katagiri 1952	H	Brazil, Argentine
<b>EPIPHYLLUM</b>				
<i>strictum</i>	22	Beard 1937	—	Trop. America
<b>ESCOBARIA</b>				
<i>runyonii</i>	22	Beard 1937	—	California
<b>FEROCACTUS *</b>				
<i>acanthodes (rostril)</i>	22	Stockwell 1935	H	"
<i>latispinus</i> & 4 spp.	22	Katagiri 1952	H	Mexico
<b>GYMNOCALYCIUM *</b>				
<i>gibbosum</i>	22	Schnack & C. 1947	H	Argentine
<i>platense</i> & 2 spp.	22	Katagiri 1952	H	"
<b>HAMATOCACTUS *</b>				
<i>setispinus</i> & 1 sp.	22	Katagiri 1952	H	Mex., Tex.
<b>HELIOCEREUS</b>				
<i>amecamensis</i>	22	Rowley unpub.	H	Mexico
<b>HOMALOCEPHALA</b>				
<i>texensis</i>	22	Beard 1937	H	Mex., Tex.
<b>HYLOCEREUS *</b>				
<i>undatus</i> & 5 spp.	22	Beard 1937	H	W. Indies
<b>LEMAIREOCEREUS *</b>				
<i>pruinus</i> & 1 sp.	22	Katagiri 1952	H	Mexico
<b>LOPHOCEREUS</b>				
<i>schottii</i>	22	Stockwell 1935	—	Calif., Ariz.
<b>LOPHOPHORA</b>				
<i>williamsii</i>	22	Beard 1937	HM	Mex., Tex.
<b>MONVILLEA</b>				
<i>spgaznii</i>	22	Katagiri 1952	H	Argentine

<b>NOPALXOCHIA</b> <i>ackermannii</i>	22	Beard 1937	H	Mexico
<b>NYCTOCEREUS</b> <i>serpentinus</i>	22	Beard 1937	H	"
<b>PHELLOSPERMA</b> $x = 11$ <i>tetrancistra</i>	22	Remski 1954	H	W: N. Amer.
<b>RHIPSALIS</b> <i>mesembryanthoides</i>	22	Beard 1937	—	Brazil
<b>SCHLUMBERGERA</b> <i>bridgesii</i>	22	Takagi 1938	H	Trop. S. Amer.
<i>russelliana</i>	22	Stockwell 1935	H	Brazil
<b>SELENICEREUS</b> * <i>pteranthus</i> & 3 spp.	22	Beard 1937	HM	Mexico
<b>THELOCACTUS</b> <i>bicolor</i>	22	Beard 1937	H	Tex., Mex.
<b>WERCKLEOCEREUS</b> <i>glaber</i>	22	Beard 1937	—	Guatemala
<b>WILCOXIA</b> <i>poselgeri</i>	22	Beard 1937	H	Tex., Mex.
<i>schmollii</i>	22	Katagiri 1952	H	Mexico
<b>ZYGOCACTUS</b> <i>truncatus</i> Christmas Cactus	22	Remski 1954		Brazil
<b>ECHINOCEREUS</b> * <i>procumbens</i> & 1 sp.	22	Katagiri 1952	H	Mexico
<i>reichenbachii</i> & 5 spp.	22	Beard 1937	H	Tex., N. Mex.
<i>engelmannii</i>	44	Stockwell 1935	H	N. America
<b>MAMMILLARIA (NEOMAMMILLARIA)</b> * $x = 11$ <i>aureiceps</i> & 8 spp.	22	Beard 1937	H	Mexico
<i>bocasana</i> & 4 spp.	22	Katagiri 1952	H	"
<i>minuta</i>	22	Beard 1937	H	—
89 spp.	22	Remski 1954	H	C. America
<i>compressa</i>	44	" "	H	Mexico
<i>dioica</i>	44	" "	H	Calif.
<i>morganiana</i>	44	" "	H	Mexico
<i>multiceps</i>	44	" "	H	"
<i>pseudocrucigera</i>	44	" "	H	"
<i>ruessii</i>	44	" "	H	Hond., Guat.
<i>prolifera</i>	44, 66	" "	H	W. Indies
<i>parkinsonii</i>	44, 88	" "	H	Mexico
<i>capensis</i>	264!	" "	H	Calif.
<b>MYRTILLOCACTUS</b> <i>geometrizans</i>	22, 44	Katagiri 1952	FH	Mexico

**TRICHOCEREUS***chiloensis*  
*spachianus*

22 Katagiri 1952

—

Chile

44 „ „

H

Argentina

**CEPHALOCEREUS***chrysacanthus*  
*royenii*

44 Katagiri 1952

H

Mexico

44 „ „

H

W. Indies

**MEDIOCACTUS***coccineus*

44 Beard 1937

H

Brazil, Argentina

**NOTOCACTUS***apricus*  
*mammulosus*

38? Takagi 1938

H

Uruguay

44 Katagiri 1952

H

Argent., Urug.

**ARIOCARPUS***fissuratus*

38? Takagi 1938

M

Tex., Mex.



## Group VII

### THEALES

108–117

ST

### MYRTALES

118–122

ST

### GUTTIFERALES

123–126

(H)ST



*Eucalyptus rudis*



## 108 THEACEAE (TERNSTROEMIACEAE)

### CAMELLIA (THEA) $x = 15$

<i>cuspidata</i>		30	Janaki Ammal 1953b	H	E. & C. China
<i>hongkongensis</i>		30	" "	H	Hong Kong
<i>kissi</i>	Wild Tea, Letpet	30	" "	B	Him., Bur., China
<i>lanceolata</i>		30	" "	—	E. Indies, Philip.
<i>maliflora</i>		30	" "	H	China
<i>salicifolia</i>		30	" "	—	S.E. China, Form.
<i>taliensis</i>		30	" "	H	Yunnan
<i>japonica</i>	Camellia	30	" "	BHO	Japan, Korea
v. <i>grandiflora</i>		45	" "	H	<i>cult</i>
<i>sinensis</i>	Chinese Tea	30	" "	BM	Yunnan, <i>cult</i> , Chi.
v. <i>assamica</i>	Assam Tea	30	" "	B	Assam, S.E. Yun.
v. <i>macrophylla</i>		{ 45	" "	H	<i>cult</i>
		60	Simura 1935		
<i>saluenensis</i>		30	Janaki Ammal 1953b	H	Yunnan
v. <i>macrophylla</i>		60	" "	H	"
<i>pitardi</i>		30	" "	H	C. & S.W. China
v. <i>yunnanica</i>		90	" "	H	Yunnan
<i>oleifera</i>	Tea Oil Pl.	90	" "	O	E. China ( <i>cult</i> )
<i>reticulata</i>		90	" "	H	Yunnan
<i>sasanqua</i>	Tea Oil Pl.	90	" "	HOP	Japan ( <i>cult</i> )

### EURYA $x = 21$

<i>japonica</i>	42	Nakajima 1942	H	E. Asia
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### TERNSTROEMIA $x = ?$

<i>japonica</i>	50	Morinaga & F. 1931	H	Sub.-Trop. Asia
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## 112 ACTINIDIACEAE

### ACTINIDIA $x = ?$

<i>polygama</i>	Silver Vine	{ c. 58	Nakajima 1942	FH	Manch., Korea,
		c. 116	Bowden 1940b		China
<i>kolomicta</i>		c. 112	Nakajima 1942	H	Jap., China, Man.
<i>arguta</i>	Tara Vine	c. 116	Bowden 1940b	H	Him., Jap., Man.
<i>chinensis</i>	Ch. Gooseberry	{ c. 116	" "	HFVit	China
		c. 160	Rizet 1945		
<i>fairchildii</i> ( <i>arguta</i> $\times$ <i>chinensis</i> )		c. 132	Bowden 1940b	F	<i>cult</i>

## 114 OCHNACEAE

### OCHNA $x = 7$ (Apomixis)

<i>serrulata</i>	Natal Pear	35	Chiarugi 1930b	H	S. Africa
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## 116 DIPTEROCARPACEAE

### PENTACME $x = 6$

<i>siamensis</i>		12	Tixier 1953	W	S.E. Asia
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**DIPTEROCARPUS**  $x = 10$ 

<i>alatus</i>	20	Tixier 1953	Re	S.E. Asia
<i>intricatus</i>	20	" "	ReW	Vietnam
<i>obtusifolius</i>	20	" "	W	S.E. Asia

**HOPEA**  $x = 10$ 

<i>odorata</i> Thingam	20	Tixier 1953	MReW	Burma, Siam
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**ANISOPTERA**  $x = 10$ 

<i>cochinchinensis</i>	20	Tixier 1953	W	Vietnam, Siam
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**118 MYRTACEAE****SF1: LEPTOSPERMOIDEAE****ACTINODIUM**  $x = 6$ 

<i>cunninghamii</i>	12	Smith-White 1950	—	W. Australia
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**DARWINIA\***  $x = 6, 7, 9$ 

(i) <i>citriodora</i> & 3 spp.	12	Smith-White 1950	H	W. Australia
<i>diosmoides</i> & 5 spp.	12	" 1954a	H	"
<i>pauciflora</i>	18	" "	—	"
<i>vestita</i>	18	" "	—	"
(ii) <i>micropetala</i>	14	" "	—	S. Australia

**VERTICORDIA\***  $x = 6, 8, 9, 11$ 

(i) <i>grandiflora</i>	12	Smith-White 1954a	—	W. Australia
<i>nitens</i> & 4 spp.	16	" "	H	"
<i>chrysantha</i>	32	" "	—	"
<i>brownii</i> & 2 spp.	18	" "	H	"
<i>habrantha</i>	36	" "	—	"
<i>monadelpha</i>	c. 36	" "	—	"
<i>densiflora</i> & 2 spp.	22	" "	H	"
(ii) <i>drummondii</i> & 2 spp.	22	" "	—	"
<i>grandis</i>	44	" "	—	"

**HOMORANTHUS\***  $x = 9$ 

<i>darwinoides</i> & 2 spp.	18	Smith-White 1954a	—	N.S.W.
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**CHAMAELAUCIUM\***  $x = 11$ 

<i>uncinatum</i> & 2 spp.	22	Smith-White '50, '54a	H	W. Australia
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**PILEANTHUS**  $x = 11$ 

<i>peduncularis</i>	22	Smith-White 1954a	—	W. Australia
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**AGONIS**  $x = 11$ 

<i>flexuosa</i>	22	Smith-White 1948a	H	W. Australia
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**ANGOPHORA**  $x = 11$ 

<i>cordifolia</i>	22	Smith-White 1942	H	N.S.W.
<i>intermedia</i>	22	" "	H	E. Australia
<i>lanceolata</i>	22	" "	H	

**BACKHOUSIA**  $x = 11$ 

<i>citriodora</i> Sweet Verbena T.	22	Smith-White 1942	HO	Australia
<i>myrtifolia</i>	22	" 1948a	H	N.S.W.

<b>BAECKEA * <math>x = 11</math></b>				
<i>crenulata</i>	22	Smith-White 1948a	—	N.S.W.
<i>diosmifolia</i> & 3 spp.	22	" "	H	"
<b>CALOTHAMNUS <math>x = 11</math></b>				
<i>villosus</i>	22	Smith-White 1948a	H	W. Australia
<b>CALYTHRIX <math>x = 11</math></b>				
<i>fraseri</i>	22	Smith-White 1950	—	W. Australia
<i>tetragona</i>	22	" "	H	E. "
<b>EUCALYPTUS <math>x = 11</math></b>				
<i>alba</i>	22	Krug & A. 1949	W	N. Australia
<i>angulosa</i>	22	Atchison 1947b	W	Australia
<i>behriana</i> Mallee Box	22	Smith-White 1948a	W	N.S.W.
<i>botryoides</i> Bangalay	22	Atchison 1947b	HShW	Australia
<i>calophylla</i> Marri	22	" "	HW	W. Australia
<i>camaldulensis</i> (rostrata) Red Gum	22	" "	DMW	Australia
<i>citriodora</i> Lemon-scented G.	22	Smith-White " 1948a	HOW	E. Australia
<i>cladocalyx</i> (corynocalyx) Sugar Gum	24!		FoHSh	
<i>diversicolor</i> Karri	22	" "	W	W. Australia
<i>dives</i> Broad-leaved Peppermint	22	Smith-White 1942	HO	N.S.W.
<i>ficifolia</i> Red Flowering Gum	22	" "	H	W. Australia
<i>globulus</i> Tasm. Blue Gum	22	McAulay <i>et al.</i> 1936	HOW	Tasmania
<i>gummifera</i> Bloodwood	22	Smith-White 1942	OW	Australia
<i>gunnii</i> Cider Gum	22	Atchison 1947b	HW	Tasmania
<i>haemostoma</i> Scribbly Gum	22	Smith-White 1942	W	Australia
<i>incrassata</i>	22	" "	OW	"
<i>johnstoni</i>	22	McAulay <i>et al.</i> 1936	W	Tasmania
<i>kirtoniana</i>	22	Atchison 1947b	W	Australia
<i>linearis</i>	22	McAulay & C. 1937	H	"
<i>longifolia</i> Woolly Butt	22	Atchison 1947b	W	"
<i>maculata</i> Spotted Gum	22	" "	HW	"
<i>obliqua</i> Messmate	22	McAulay & C. 1937	HW	"
<i>paniculata</i> Grey Ironbark	22	Smith-White 1942	W	"
<i>pauciflora</i> Snow Gum	22	McAulay & C. 1937	H	"
<i>pulverulenta</i>	22	Atchison 1947b	H	"
<i>redunca</i> v. <i>elata</i> Wandoo	24!	" "	W	W. Australia
<i>resinifera</i> Red Mahogany	22	" "	W	Australia
<i>rubida</i> Candlebark	22	" "	ShW	"
<i>rudis</i> Swamp Gum, Moitch	22	" "	W	"
<i>saligna</i> Sydney Blue Gum	22	Krug & A. 1949	W	"
<i>sideroxylon</i> Red Ironbark	22	Smith-White 1942	HW	"
<i>staigeriana</i>	22	" 1950	H	N. Queensland
<i>steedmanii</i>	22	Atchison 1947b	W	W. Australia
<i>stuartiana</i> Apple Box	22	" "	W	Australia
<i>tetraptera</i>	22	Smith-White 1950	W	W. Australia
<i>torquata</i> Coolgardie Gum	22	Atchison 1947b	H	Australia
<i>triantha</i> White Mahogany	22	" "	W	"
<i>viminalis</i> Manna Gum	22	" "	W	"
<b>KUNZEA <math>x = 11</math></b>				
<i>ambigua</i> (corifolia)	22	Smith-White 1948a	H	N.S.W.
<i>capitata</i>	22	" "	—	"

**MELALEUCA** \*  $x = 11$

<i>elliptica</i>	22	Smith-White 1948a	H	W. Australia
<i>stypelioides</i>	22	" "	H	N.S.W.
<i>thymifolia</i> & 8 spp.	22	" "	H	"

**MICROMYRTUS**  $x = 11$

<i>ciliata</i> ( <i>microphylla</i> )	22	Smith-White 1950	H	E. Australia
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**SYNCARPIA**  $x = 11$

<i>laurifolia</i>	22	Smith-White 1948a	—	N.S.W.
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**THRYPTOMENE**  $x = 11$

<i>calycina</i> ( <i>mitchelliana</i> )	22	Smith-White 1950	H	E. Australia
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**TRISTANIA**  $x = 11$

<i>conferta</i> Brisbane Box	22	Smith-White 1942	HW	Australia
<i>laurina</i>	22	" 1948a	H	N.S.W.

**CALLISTEMON** \*  $x = 11$

<i>citrinus</i> Bottle-Brush Tree & 9 spp.	22	Smith-White 1948a	HO	E. Australia
<i>pinifolius</i>	22, c. 30, 33	" "	H	N.S.W.
<i>linearis</i>	22, 33, 44	" "	H	"
<i>rigidus</i>	22, 44	" "	H	"
<i>viminalis</i>	44	" "	"	Queensland

**LEPTOSPERMUM** \*  $x = 11$

<i>stellatum</i> & 11 spp.	22	Smith-White 1948a	H	Australia
<i>parvifolium</i>	44	" "	"	"

**SF2: MYRTOIDEAE**

**FEIJOA**  $x = 11$

<i>sellowiana</i> Feijoa, Pineapple-Guava	22	Bowden 1940a	F	Brazil
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**MYRTUS**  $x = 11$

<i>communis</i> Myrtle	22	Greco 1929	HPSp	Medit., S.W. Asia
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**PIMENTA**  $x = 11$

<i>acris</i> Lemon-scented Allspice	22	EKJ*	PSp	W. Indies
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**EUGENIA**  $x = 11$

<i>malaccensis</i> Malacca Apple	22	van der Pijl 1934	F	Trop. Asia
<i>uniflora</i> Surinam Cherry	22	Bhaduri & I. 1949	FH	Brazil
<i>(michelli)</i>				
<i>jambos</i> Rose Apple	{ 28, c. 42 c. 54	van der Pijl 1934		
	46	" "	FH	Trop. Asia
	44	Bhaduri & I. 1949		
	44	Smith-White 1948a	—	N.S.W.
<i>leuhmanni</i>	44	" "	HW	"
<i>myrtifolia</i>	44	" "	HW	"
<i>smithii</i> Lilli-pilli	44	" "		
<i>cumini</i> Jambalam	{ 44, 66	Tjio 1948	ADFW	India
<i>(jambolana)</i>	45	Bhaduri & I. 1949		
<i>javanica</i> Jum Rool	45	" "	F	E. Indies

**PSIDIUM**  $x = 11$

<i>guava</i>	Guava	{	22 Atchison 1947 b, EKJ*	FVit	Trop. Amer.
Seedless var.			33 Kumar & R. 1952		
<i>cattleianum</i>	Purple or	{	88 Atchison 1947b	□	Brazil
	Gooseberry G.		88 Smith-White 1948a		

## 19 LECYTHIDACEAE

**COUROUPITA**  $x = 18$

<i>guianensis</i>	Cannonball T.	36	Banerji 1950a	HSh	Trop. America
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## 120 MELASTOMACEAE

**MEMECYLON**  $x = 7$

<i>aylmeri</i>		14	Favarger 1952a	—	W. Tr. Africa
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**SONERILA**  $x = 8$

<i>wallichii</i>		16	Subramanyam 1944	—	India
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**GUYONIA**  $x = 9$

<i>ciliata</i>		18	Favarger 1952a	—	W. Tr. Africa
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**OSBECKIA**  $x = 10$

<i>afzelii</i>		20	Favarger 1952a	—	W. Tr. Africa
<i>liberica</i>		20	" "	M	"
<i>tubulosa</i>		20	" "	M	"
<i>parvifolia (zeylanica)</i>		20	Subramanyam 1946	H	Ceylon
<i>rosea</i>		40	" "	—	Nilgiri

**DISSOTIS**  $x = 10, 16, 17$

<i>brazzaei</i>		20	Favarger 1952a	—	W. Tr. Africa
<i>rotundifolia</i>		30	" "	HM	"
<i>jacquesii</i>		32	" "	—	"
<i>capitata</i>		34	" "	BM	"

**PREUSSIELLA**  $x = 11$

<i>chevalieri</i>		44	Favarger 1952a	—	W. Tr. Africa
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**DINOPHORA**  $x = 12$

<i>spenneroides</i>		24	Favarger 1952a	—	W. Tr. Africa
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**MELASTOMA**  $x = 14$

<i>candidum</i>		28	Sugiura 1936b	H	China
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**TRISTEMMA**  $x = 17$

<i>hirtum</i>		34	Favarger 1952a	—	W. Tr. Africa
<i>incompletum</i>		34	" "	—	"
<i>involucratum</i>		34	" "	M	"

**SAKERSIA**  $x = ?$

<i>africana</i>		c. 40	Favarger 1952a	—	W. Tr. Africa
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<b>CALVOA</b> $x = ?$ <i>monticola</i>	c. 44	Favarger 1952a		W. Tr. Africa
<b>DICELLANDRA</b> $x = ?$ <i>barteri</i>	64-68	Favarger 1952a	—	W. Tr. Africa

## 121 COMBRETACEAE

<i>indica</i>	Rangoon Creeper	22	Rajagopalan 1949	HMN	Tr. Asia & Afr.
<b>TERMINALIA</b> $x = 12$ <i>catappa</i>	Indian Almond	24	Simmonds 1954	NW	India, Malaya

## 123 HYPERICACEAE

<b>HYPERICUM</b> $x = 7, 8, 9, 10, 12.$ $x_1 = 19$ (Apomixis) $x = 7$ <i>rumelicum</i>	14	Nielsen 1924	H	S.E. Europe
$x = 8$ <i>boreale (mutilum)</i>	16	Hoar & H. 1932	—	N. America
<i>elatum</i>	16	Suzuka 1950	H	Madeira, Canar.
<i>elodeoides</i>	16	Sugiura 1944	—	Himal., Burma
<i>humifusum</i>	16	Winge 1925	H	W. & C. Eur.
<i>montanum</i>	16	Nielsen 1924	H	Eur., Cauc., Algeria
<i>orientale</i>	16	" "	H	Asia Minor
<i>punctatum</i> (ring of 16)	16	Hoar 1931	—	N. America
<i>quadrangulum (maculatum)</i>	16	Noack 1939	H	Eur., W. Sib.
<i>senanense</i>	16	M. & S. 1935	—	Japan
<i>tetrapterum (acutum)</i>	16	Noack 1939	H	Europe, Asia M., N. Africa
<i>tomentosum</i>	16	Nielsen 1924	H	S. Eur., N. Africa
<i>undulatum</i>	32	Sugiura 1944	—	Spain
<i>perforatum</i> (Apo.)	32	Noack 1939	H	Eur., Himal., Sib.
$x = 9$ <i>ascyron</i>	18	Nielsen 1924	H	N.E: N. Amer., C. & E. Asia
<i>coris</i>	18	" "	H	S. Europe
<i>frondosum (aureum)</i>	18	Hoar & H. 1932	H	S.E: U.S.A.
<i>hirsutum</i>	18	Noack 1939	H	Eur., Cauc., Sib.
<i>kalmianum</i>	18	Hoar & H. 1932	H	E: N. Amer.
<i>olympicum</i>	18	Sugiura 1944	H	Greece, Asia M.
<i>polyphyllum</i>	18	" 1936a	H	S.W. Asia Minor
<i>prolificum</i>	18	Hoar & H. 1932	H	E: N. Amer.
<i>pulchrum</i>	18	Böcher 1940	—	Europe
<i>rhodopeum (organifolium)</i>	18	Nielsen 1924	H	S.E. Eur., Asia M.
<i>moserianum</i>	36	Sugiura 1944	H	<i>cult</i>
<i>patulum</i>	36	" 1936a	H	China
$x = 10$ <i>calycinum</i>	20	Maude 1939	H	S.E. Europe

# HYPERICUM (cont.)

<i>androsaemum</i>	Tutsan	40	Nielsen 1924	HM	Eur., Cauc., Asia M.
<i>hircinum</i>	Stinking St. J. W.	40		H	Medit., C. Eur.
<i>inodorum</i>		40		H	E. Eur., Cauc.

$x = 12$					
<i>gentianoides</i>	Orange Grass	24	Hoar & H. 1932		N. America

$x_2 = 19$					
<i>virginicum</i>		38	" "		

# CRATOXYLON $x = 7$

<i>formosum</i>		14	Tixier 1953	W	S.E. Asia
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## 126 GUTTIFERAE

# CALOPHYLLUM $x = 16$

<i>inophyllum</i>	Pinnay T.	32	Tixier 1953	MOW	O.W. Tropics
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# MESUA $x = 16$

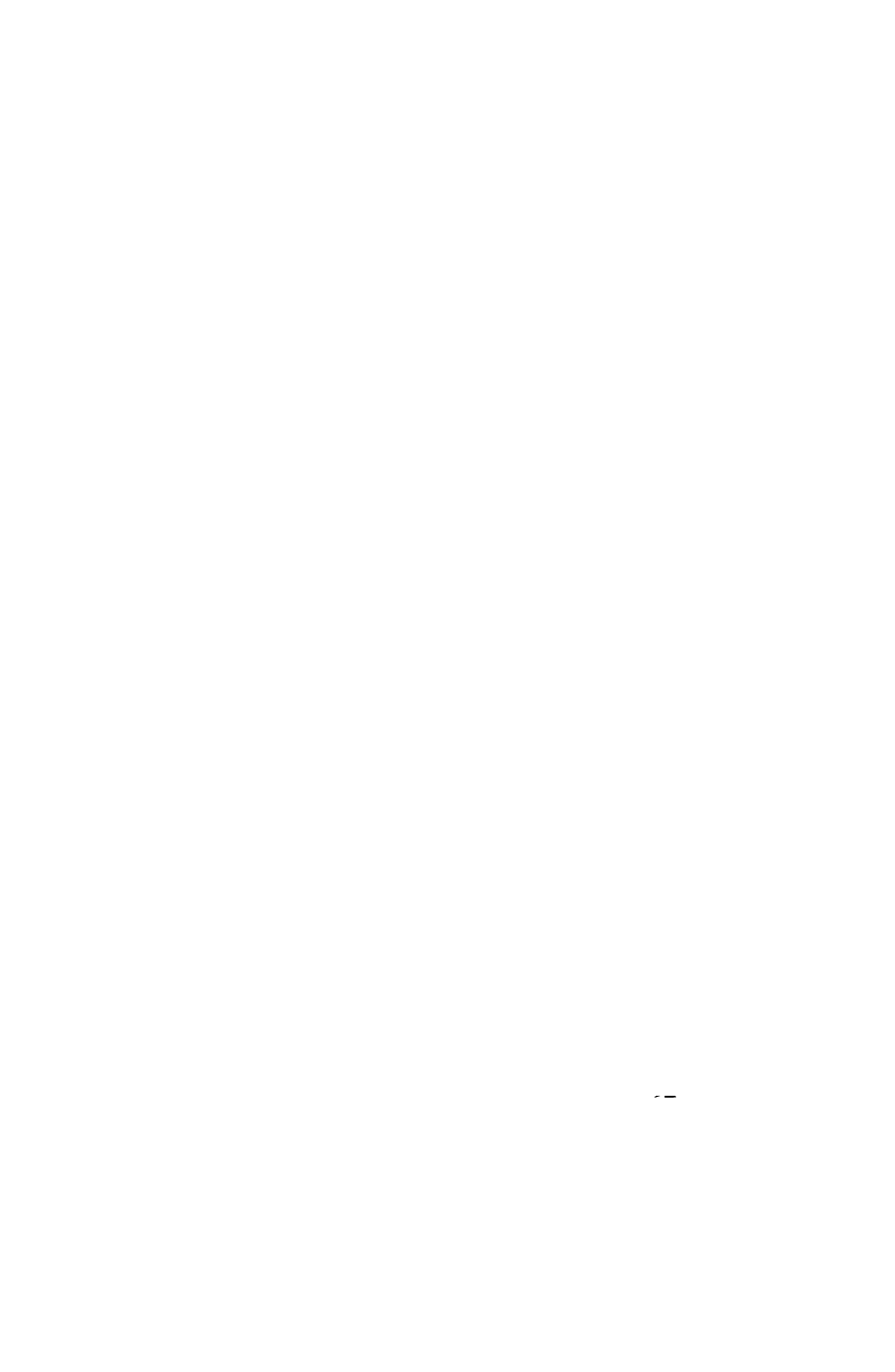
<i>ferrea</i>	Ironwood	32	Tixier 1953	FOW	India, Ceylon
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# OCHROCARPUS $x = 16$

<i>siamensis</i>		32	Tixier 1953	FW	S.E. Asia
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# GARCINIA $x = ?$ (Apomixis)

<i>hanburyi</i>	Gamboge	44	Tixier 1953	D	Siam
<i>indica</i>	Kokum	c. 54	Krishnaswamy & R. 1949	DFMO	India
<i>speciosa</i>	Palawa T.	c. 55	" "	ReW	Burma, Andaman
<i>mangostana</i>	Mangosteen	c. 76	" "	F	Moluccas
<i>cambogia</i>	Goraka.	c. 58	Krishnaswamy <i>et al.</i> 1954	D Sp. ?	E. Indies
<i>xanthochymus (tinctoria)</i>		c. 80	" "	F	India, Mal.



## Group VIII

### TILIALES

127-131

ST

### MALVALES

132

HS(T)

### MALPIGHIALES

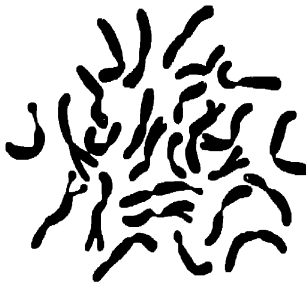
133-135

ST

### EUPHORBIALES

136

(H)ST



*Gossypium arboreum*



## 128 TILIACEAE

### CORCHORUS $x = 7$

<i>acutangulus</i>		14	Banerji 1932	T	Tropics
<i>capsularis</i>	Jute	14	Nakajima 1936	T	India
<i>fascicularis</i>		14	Rao & D. 1953	—	O.W. Tropics
<i>olitorius</i>	Jew's Mallow	14	Banerji 1932	(V)T	India
<i>tridens</i>		14	Mukherjee 1952a	—	Tropics
<i>trilocularis</i>		{ 14	" "	—	O.W. Tropics
		{ 14	Rao & D. 1953	—	
<i>siliquosus</i>		28		—	Sub-Trop. Amer

### GREWIA $x = 9$

<i>parviflora</i>		18	Dermen 1932a	T	China
<i>asiatica</i>	Phalsa	36	Bhaduri & B. 1949	FT	India

### CLAPPERTONIA (HONCKENYA) $x = (9) 18$

<i>ficifolia</i>		36	Baldwin & S. 1951d	H	Trop. Africa
<i>minor</i>		36	" "		

### TRIUMFETTA $x = 16$

<i>bartramia</i>	Champadang	32	Lay 1950	T	Tropics
<i>as rhomboidea</i>		48	Rao & R. 1952		
<i>calderoni</i>		32	Lay 1950	—	"
<i>semitriloba</i>		32	" "	T	"

### TILIA $x = 41$

<i>cordata</i>	Linden	82	Dermen 1932a	MW	Europe
<i>glabra (americana)</i>		82	" "	W	N. America
<i>neglecta</i>		82	" "	W	"
<i>oliveri</i>		82	" "	W	China
<i>petiolaris</i>	Weeping W. L.	82	" "	H	Hungary
<i>platyphyllos</i>		82	" "	MShW	Europe
<i>vulgaris (europaea)</i>	Lime Tree	82	" "	MW	"
<i>amurensis</i>	Bass Wood	164	" "	TW	Siberia
<i>insularis</i>		164	" "	W	Japan
<i>maximowicziana</i>		164	" "	W	"
<i>tuan</i>		164	" "	W	China

## 130 STERCULIACEAE

### GUAZUMA $x = 8$

<i>tomentosa</i>	Bastard Cedar	16	Youngman 1931	(F)TW	Tr. America
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### HERRANIA $x = 10$

<i>albiflora</i>		20	Simmonds 1954	—	Trop. Amer.
<i>purpurea</i>		20	" "	—	"

### THEOBROMA $x = 10$

<i>angustifolia</i>		20	Simmonds 1954	—	Trop. Amer
<i>bicolor</i>	Peru Cocoa	20	" "	B	"
<i>cacao</i>	Cocoa	20	" "	BM	"
<i>leiocarpa</i>		20	Carletto 1948	—	"

<b>THOMASIA</b> $x = 10$					
<i>solanacea</i>	20	Chatelier 1939	H	W. Australia	
<b>COLA</b> $x = 10$					
<i>acuminata</i> Kola nut	40	EKJ*	BMSp	Trop. Africa	
<b>FREMONTIA</b> $x = 10$					
<i>californica</i>	40	Lenz 1950	H	California	
<b>STERCULIA (FIRMIANA)</b> $x = 10$					
<i>platanifolia</i> Parasol T.	40	Chatelier 1939	T	China, Japan	
<i>colorata</i>	40	Pathak <i>et al.</i> 1949	HT	India, Siam	
<b>PTEROSPERMUM</b> $x = 19$					
<i>aurifolium</i>	38	Pathak <i>et al.</i> 1949	H	E. Indies	
<b>DOMBEYA</b> $x = 23$					
<i>spectabilis</i>	46	Chatelier 1939	H	Trop. Africa	

### 131 BOMBACACEAE

<b>BOMBAX</b> $x = ?$					
<i>malabaricum</i> Silk Cotton	c. 72	EKJ*	OTW	S.E. Asia	
<b>CEIBA (ERIODENDRON)</b> $x = ?$					
<i>pentandra</i> Silk Cotton T.	72, 80	Heyn 1936	(O)T	S.E. Asia & Afr.	
Kapok T.					
<i>indica</i> strains	88	Tjio 1948			
<i>occidentale</i>	88	Heyn 1936	(O)T	Trop. Amer.	
( <i>pentandra</i> v. <i>caribaea</i> )					

### 132 MALVACEAE

<b>MODIOLASTRUM</b> $x = 5$					
<i>malvifolium</i>	10	Krapovickas 1949	—	Temp. S. Am.	
<b>NOTOTRICHE</b> $x = 5$					
<i>caesia</i>	10	Krapovickas 1951b	—	Temp. S. Am.	
<i>pusilla</i>	10	" "	—	"	
<i>rugosa</i>	10	" "	—	"	
<i>hillii</i>	20	" "	—	"	
<i>sarmentosa</i>	20	" "	—	"	
<i>copon</i>	30	" "	—	"	
<i>ovata</i>	c. 30	" "	—	"	
<b>TARASA</b> $x = 5$					
<i>albertii</i>	10	Krapovickas 1949	—	Chile	
<b>SPHAERALCEA</b> * $x = 5, 17, 33$					
<i>australis</i> & 8 spp.	10	Krapovickas 1949	—	S. Amer.	
<i>coccinea</i> Globe Mallow	10	Webber 1936	H	W; N. Amer.	
& 5 spp.					
<i>miniata</i>	10	Skovsted 1935	H	Trop. Amer.	
<i>ambigua</i>	{ 10	" 1941			
	20, 30	Webber 1936	H	W; N. Amer.	

# SPHAERALCEA (cont.)

<i>angustifolia</i>	10, 20	Webber 1936	H	Mexico
<i>fendleri</i>	{ 10, 20 15	" " EKJ	H	California
<i>incana</i>	10, 20	Webber 1936	—	<i>cult</i> W: N. Amer.
<i>rusbyi</i>	10, 20	" "	—	Arizona
<i>lobata</i>	20	Skovsted 1941	—	N. America
<i>patagonica</i>	20	Covas & S. 1947	—	Patagonia
<i>emoryi</i>	20, 30, 50	Webber 1936	H	California
<i>chenopodifolia</i>	30	Krapovickas 1949	—	Argentina
<i>mendocina</i>	30	" "	—	Chile
<i>abutiloides</i>	34	Webber 1936	H	Bahamas
<i>umbellata</i>	34	Skovsted 1935	H	Mexico
<i>rivularis</i>	66	Webber 1936	—	N. America

# LECANOPHORA $x = 6$

<i>ecristata</i>	12	Krapovickas 1950	—	Argentina
<i>heterophylla</i>	12	" "	—	"
<i>ameghinoides</i>	24	" "	—	"

# CALLIRHOË $x = 6, 7$

<i>involutrata</i>	24	Kessler 1932	H	C: U.S.A.
<i>v. lineariloba</i>	42	Skovsted 1935	H	Mex., Texas

# WISSADULA $x = 7$

<i>contracta</i>	14	Skovsted 1935	—	Tropics
<i>periplocifolia</i>	14	" 1941	—	"

# BASTARDIA $x = 7$

<i>viscosa</i>	28	Skovsted 1941	—	W. Indies
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# NAPAEA $x = 7$

<i>dioica</i>	28	Skovsted 1935	—	N. America
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# URENA $x = 7$

<i>sinuata</i>	28	Skovsted 1941	T	Tropics
<i>lobata</i> Aramina, Congo Jute	28, 56	" "	T	"

# ALTHAEA $x = 7$

<i>cannabina</i>	28, 84	Skovsted 1935, 1941	T	Eur., S.W. Asia
<i>apterocarpa</i>	42	" "	—	S.W. Asia
<i>ficifolia</i> Antwerp H.	42	" "	H	Siberia
<i>officinalis</i> Marsh Mallow	42	" "	HM	Eur., W. Asia, N. Africa
<i>pallida</i>	42	" "	H	Hung., Balkans
<i>pontica</i>	42	" 1941	H	N.E. Medit.
<i>sulphurea</i>	42	" "	H	Pers., Turkestan
<i>rosea</i> Hollyhock	{ 42 56	" " Sugiura 1936b	H	China, <i>cult</i>
<i>sinensis</i>	70	Skovsted 1935	H	China
<i>armenaica</i>	84	" 1941	H	E. Medit.
<i>hohenackeri</i>	c. 84	" 1935	H	Asia M., Cauc.
<i>kragujevacensis</i>	c. 84	" "	H	Serbia

**PAVONIA**  $x = 7$

<i>hirsuta</i>	28	Skovsted 1941	MT	Trop. Africa
<i>kotschy</i>	c. 28	" 1935	—	Abyssinia
<i>praemorsa</i>	28	" "	H	S. Africa
<i>schimperiana</i>	28	" "	T	Trop. Africa
<i>spinifex</i>	42, 112	" 1935, 1941	H	S. America
<i>hastata</i>	56	" "	H	"

**MALVA**  $x = 7$

<i>moschata</i> Musk Mallow	42	Skovsted 1935	H	Eur., N. Africa
<i>neglecta (rotundifolia)</i>	42	" "	—	Eur., Asia, N. Afr.
<i>nicaeensis</i>	42	" "	—	Medit.
<i>parviflora</i>	42	" 1941	—	"
<i>syvestris</i> Common Mallow	42	" 1935	H	Europe
<i>pusilla (borealis)</i>	42, 76	" " 1941	—	N. & C. Eur.
<i>alcea</i>	84	" "	H	Europe
<i>verticillata</i>	c. 84	" "	V	Asia
<i>brasiliensis</i>	c. 112	" "	—	Brazil
<i>crispa</i>	c. 112	" "	HV	Europe

**TYPHALAEA**  $x = 7$

<i>fruticosa</i>	56	Skovsted 1941	—	S. America
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**MALACHRA**  $x = 7$

<i>alceifolia</i>	56	Skovsted 1935	T	Tropics
<i>capitata</i>	56	" "	T	"
<i>fasciata</i>	c. 112	" "	—	Venezuela

**MALVAVISCUS**  $x = 7$

" <i>arboreus</i> "	c. 84	Skovsted 1935	H	Mexico
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**ABUTILON** \*  $x = 7, 8$

<i>auritum</i> & 2 spp.	14	Skovsted 1941	—	Ceylon
<i>crispum</i>	14	" 1935	HT	Tropics
<i>avicennae</i> Maba	42	" 1941	HT	cult, China
<i>indicum</i> Indian Mallow	42	" "	HMT	Tropics
<i>molle</i> & 5 spp.	42	" "	—	Peru
<i>striatum</i>	16	" 1935	H	Brazil
<i>umbellatum</i>	16	" 1941	—	W. Indies

**SIDA**  $x = 7, 8, 11$

<i>acuta</i>	14, 28	Skovsted 1935, 1941	—	C. America
<i>spinosa</i> Cuba Jute	14, 28	" " "	T	Tropics
<i>grewioides</i>	28	" 1941	T	India, Trop. Afr.
<i>triloba</i>	28	" "	—	S. Africa
<i>veronicaefolia</i>	14, 56	" "	—	Trop. Amer.
<i>rhombifolia</i> Sida	14 + 0-1B, 28	" "	MT	cult, India
Hemp				
<i>v. canariensis</i>	16	Nascimento 1941	—	Queensland
<i>corrugata</i>	16	Skovsted 1941	—	Australia
<i>subspicata</i>	16	" "	—	Trop. Amer.
<i>leprosa</i>	32	Covas & S. 1946	—	Tr. Afr. & Amer
<i>urens</i>	32	Skovsted 1935	T	
<i>hederacea</i>	22	Heiser & W. 1948	—	N. America

# **LAVATERA** $x = 7, 22$

<i>trimestris</i>		14	Skovsted 1935	H	Medit.
<i>arborea</i>	Tree Mallow	{ 40	Nakajima 1936	H	W. Eur., N. Afr
		42	Skovsted 1935		
<i>micans</i>		42	Davie 1935	—	Spain
<i>olbia</i>		42	Nakajima 1936	H	S. Europe
<i>cachemiriana</i>		{ 42	Skovsted 1935	H	Himalayas
		44	Davie 1935		
<i>plebeia</i>		43!	Skovsted 1935	—	Australia
<i>thuringiaca</i>		44	" "	—	S. Europe
<i>triloba</i>		44	Davie 1935	—	Spain
<i>mauretanica</i>		c. 84	Skovsted 1935	H	N. Africa
<i>cretica (sylvestris)</i>		c. 112	" "	—	W. Eur., Medit.

# **HIBISCUS** $x = 7, 8, 9, 11, 12, 15, 17, 19, 20, 39$

$x = 7, 8$

<i>trionum</i>	Flower-of-an-Hour	{ 28	Medvedeva 1936	H	Trop. Africa
		56	Skovsted 1935		
<i>gossypinus (gossypium)</i>		{ 28	" "	—	S. Africa
		32	" 1941		
<i>ferrugineus</i>		32	" "	—	Madagascar
<i>mutatus</i>		32	" "	—	Trop. Africa
<i>micranthus</i>		64	" "	TTo	India, Trop. Afr

$x = 9$

<i>cannabinus</i>	Gamboor, Kenaf, Deccan Hemp	{ 36	Medvedeva 1936	MOTV	O.W. Tropics
		36	Skovsted 1941		
<i>surrattensis</i>		36	" "	MTV	"
<i>abelmoschus</i>	Moskokva	72	" "	HMP	India
<i>aspera</i>		72	" "	MT	Trop. Africa
<i>bifurcatus</i>		72	" "	—	S. Amer.
<i>radiatus</i>		72	Tjio 1948	H	India, Malaya

<i>sabdariffa</i>	Javan Jute	36, 72	Skovsted 1941	BMHVT	O.W. Tropics
<i>esculentus</i>	Okra, Lady's Fingers	{ 72	Teshima 1933	MHVT	Abyssinia, <i>cult</i>
		120	Purewal & R. 1947		
		130	Joshi & H. 1953		
		132	Medvedeva 1936		
<i>tiliaceus</i>	Mahoe	80, 96	Youngman 1931	TW	O.W. Tropics
<i>rosa-sinensis</i>	Shoe Flower	{ 92	Skovsted 1935	DHV	E. Asia
		144	Youngman 1927		
		168	Skovsted 1941		
<i>diversifolius</i>		144, c. 180	" "	T	O.W. Tropics

$x = 11$

<i>cardiophyllus</i>		22	Skovsted 1941	—	Madagascar
<i>phoeniceus</i>		22	" "	—	India
<i>pusillus</i>		22	" "	—	S. Africa
<i>manihot</i>		66	" 1935	HT	S.E. Asia

$x = 12$

<i>panduraeformis</i>		24	Skovsted 1941	—	O.W. Tropics
<i>storkii</i>		84	" "	—	Fiji
<i>waimeae</i>		84	" 1935	—	Hawaii

$x = 15$

<i>lepidospermus</i>		30	Medvedeva 1936	—	Trop. Africa
<i>pedunculatus</i>		30	" "	—	S. Africa

# HIBISCUS (cont.)

$x = 17$

<i>parkeri</i>	34	Skovsted 1935	—	Madagascar
<i>solandra</i>	34	Medvedeva 1936	—	Trop. Asia, Africa
<i>vitifolius</i>	34 + 0-1B	Skovsted 1941	MT	Tropics

$x = 19$

<i>coccineus</i>	38	Skovsted 1935	H	S.E: U.S.A.
<i>grandiflorus</i>	38	„ 1941	—	N. America
<i>lasiocarpus</i>	38	„ „	—	?
<i>militaris</i>	38	Nakajima 1936	—	N. America
<i>palustris</i>	38	Medvedeva 1936	H	E: U.S.A.
<i>roseus</i>	38	Skovsted 1935, 1941	H	E: U.S.A. (nat. in France)

$x = 20$

<i>ludwigii</i>	40	Skovsted 1941	—	S. Africa
<i>lunariifolius</i>	40		—	Trop. Asia & Afr.
<i>physaloides</i>	40		T	E. Africa
<i>mutabilis</i> Cotton Rose	92			
	100	Medvedeva 1936	HT	Burma, China
<i>calyphyllos</i>	80	Skovsted 1941	—	Mascarene Is.
<i>syriacus</i> Rose of Sharon	80		H	E. Asia

$x = 39$

<i>ficulneus</i>	78	Skovsted 1941	—	Tr. Asia & Austr.
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## HIBISCADELPHUS $x = 10$

species	40	Skovsted 1941	—	Hawaii
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## MODIOLA $x = 9$

<i>caroliniana</i>	18	Krapovickas 1949	—	S: U.S.A.
<i>multifida</i>	18	Skovsted 1941	H	W: N. & S. Amer.

## CIENFUGOSIA (FUGOSIA) $x =$

<i>heterophylla</i>	20	Longley 1933		W.I., Tr. S. Amer.
	22	Skovsted 1941		
<i>hildebrandtii</i>	26	Youngman 1931		E. Trop. Africa

## SIDALCEA $x = 10, 13$

<i>candida</i>	20+1B	Skovsted 1935	H	Rocky Mts.
<i>campestris</i>	20	Ford 1938	H	W: N. Amer.
	20			
<i>parviflora</i>	26	„ „ 1935	H	S. Calif.
<i>malviflora</i> Checkerbloom	c. 60	Skovsted 1935	H	California

## KITAIBELIA 11

<i>lindemuthi</i>	44	Skovsted 1935	H	<i>cult</i>
<i>vitifolia</i>	44	„ „	H	E. Europe

## MALOPE $x = 11$

<i>hispidia</i>	44	Skovsted 1935	—	Algeria
<i>trifida</i>	44, 50	„ „	H	Spain, N. Africa

## MALVASTRUM\* 12, 15, 16, 17, 21, 22

<i>coromandelianum</i>	24	Skovsted 1935	—	Tropics
<i>scoparium</i>	24	„ „	—	Trop. Amer.
<i>tricuspidatum</i>	24	„ 1941	H	Australia

# MALVASTRUM (cont.)

<i>limense</i>	30	Skovsted 1935	H	Peru
<i>peruvianum</i>	30	" "	—	Mexico
<i>greenmanianum</i>	32	" "	—	"
<i>fasciculatum</i> & 5 spp.	34	Webber 1936	H	California
<i>grossulariaefolium</i>	42	Skovsted 1935	—	S. Africa
<i>scabrum</i>	42	" 1941	—	Peru
<i>capense</i> False Mallow	44	" 1935	H	S. Africa

# KOKIA $x = 12$

<i>dryarinoides</i>	24	Skovsted 1941	H	Hawaii
<i>rockii</i>	24	" "	—	"

# GOSSYPIOIDES $x = 12$

<i>brevilatum</i>	24	Hutchinson 1943	—	Madagascar
<i>kirkii</i>	24	Skovsted 1935	—	Trop. Africa

# GOSSYPIUM $x = 13$

## (i) Old World Wild Species

<i>areysianum</i>	26	Douwes 1953	—	S. Arabia
<i>anomalum</i> Wild O.W. Cotton	26	Skovsted 1935	T	Tr. & S.W. Africa
<i>somalense</i>	26	Douwes 1951	—	E. Trop. Africa
<i>stocksii</i> Wild Sind C.	26	Skovsted 1935	—	Sind, S.E. Arabia,
Arabian C.				Br. Somaliland
<i>sturtii</i> Wild Austr. Cotton	26	" "	H	C. & S. Australia
<i>triphyllum</i>	26	Douwes 1953	—	S.W. Afr., Angola

## (ii) New World Wild Species

<i>aridum</i> Wild N.W. Cotton	26	Skovsted 1933	—	Mexico
<i>armorianum</i> Calif. Wild C.	26	" "	—	L. Calif.
<i>davidsonii</i>	26	" "	—	"
<i>gossypoides</i>	26	Brown & M. 1952	—	S. Mexico
<i>harknessii</i>	26	Webber 1934	—	L. Calif.
<i>klotzschianum</i>	26	Skovsted 1935	—	Galapagos
<i>raimondii</i>	26	Barducci & M. 1941	—	N. Peru
<i>thurberi</i>	26	Skovsted 1933	—	Ariz., Mexico
<i>trilobum</i>	26	" 1935	—	S. Mexico

## (iii) Old World Cultivated Species

<i>arboreum</i> Asiatic Tree C.	26	Zaitzew 1927	T	Asia (cult)
	(52)	Stephens 1942		N.E. Afr., Madag.
<i>herbaceum</i> Broach Kappas	26	Zaitzew 1927	MT	Asia (cult)
	(39)	Skovsted 1933		
	(52)	Beasley 1940		
<i>v. africanum</i>	26	Webber 1934	—	S. Africa
<i>v. acerifolium</i>	26	Nikelajewa 1923	—	India, N.E. & C. Africa

## (iv) New World Cultivated Species

<i>barbadense</i> Egyptian or Sea	52	Webber 1934	MT	Trop. S. Amer.
Island Cotton	(26)	Skovsted 1934a		& cult
	(104)	Beasley 1940		
<i>v. brasiliense</i> Chain C.	52	Webber 1934	T	E. Tr. S. Amer.
<i>v. darwinii</i> Galapagos C.	52	" "	T	Galapagos
<i>hirsutum</i> Upland Cotton	52	Zaitzew 1927	T	C. America
	(104)	Harland 1940		& cult
<i>tomentosum</i> Hawaiian C.	52	Skovsted 1933	T	Hawaii

<b>SHANTZIA</b> $x = 13$				
<i>garckeana</i>	26	Longley 1933	—	Trop. Africa
<b>THESPESIA</b> $x = 13$				
<i>populnea</i> Portia Tree	26	Youngman 1931	DSH	W. Tropics
( <i>macrophylla</i> )				
<i>rogersii</i>	26	Skovsted 1941	—	Trop. Africa
<b>ANODA</b> $x = 15$				
<i>cristata</i>	30	Ford 1938	—	Mexico
<i>hastata</i>	30, 60	Skovsted 1941	H	Mex., Peru
<i>wrightii</i>	c. 60	„ 1935	H	New Mexico
<b>KOSTELETZKYA</b> $x = 17$				
<i>hastata</i>	34	Skovsted 1941	—	India?

### 133 MALPIGHIACEAE

<b>STIGMAPHYLLON</b> $x = 9$				
<i>ciliatum</i>	18	Snoad unp.		W. Indies
<b>BANISTERIA</b> $x = 10$				
<i>caapi</i> Caapi	20	Baldwin 1946b		Brazil

### 135 ERYTHROXYLACEAE

<b>ERYTHROXYLON</b> $x = 12$				
<i>coca</i> Cocaine Plant	24	Heitz 1929, EKJ*	M	Peru

### 136 EUPHORBIACEAE

#### SF1: CROTONOIDEAE

<b>EUPHORBIA*</b> $x = 6, 7, 8, 9, 10$ (Apomixis)				
$x = 6$				
<i>capitata</i>	12	Harrison, T. 1931	—	Tropics
<i>cereiiformis</i>	{ 12	„ ”	H	S. Africa
	{ 20	Perry 1943		
<i>dulcis</i>	{ 12	„ ”	—	Europe
	{ 28?	Carano 1926		
<i>nutans (preslii)</i>	{ 12	D'Amato 1947b	—	N. America
	{ 14	Perry 1943		
<i>welwitschii</i>	12	Harrison, T. 1931	—	Portugal
<i>pekinensis</i>	24	Perry 1943	—	China
$x = 7$				
<i>bivonae</i>	14	D'Amato 1947b	—	N. Afr., Sicily
<i>dentata</i>	14, 28, 56	Perry 1943	—	N. America
<i>pubescens</i>	{ 14	D'Amato 1947a	—	Medit.
	{ 16	Perry 1943		
<i>commutata</i>	28	„ ”	—	N. America
<i>fulgens</i>	28	„ ”	H	Mexico

# EUPHORBIA (cont.)

<i>geniculata</i>		28	Moyer 1934	—	Trop. Amer.
<i>graeca</i>		28	Perry 1943	—	Greece, Asia M.
<i>hypericifolia</i>		28	" "	—	Tropics
<i>ipecacuanha</i>	Ipecac Spurge	28	" "	H	N. America
<i>maculata</i>		28	" "	—	"
<i>corollata</i>	Flowering Spurge	{ 28	" "	—	"
		30	Harrison, T. 1931	—	"
<i>pithyusa</i>		28	Perry 1943	—	Medit.
<i>v. ovalifolia</i>		36	D'Amato 1939	—	
<i>platyphyllos</i>		{ 28	Perry 1943	—	Eur., N. Africa
		36	Harrison 1930	—	
<i>pulcherrima</i>	Poinsettia	28	Moyer 1934	H(V)	Mexico
<i>stricta</i>		28	Perry 1943	H	Eur., Medit., Cauc
<i>helioscopia</i>	Sun Spurge	42	" "	—	Eur., Medit.
<i>heterophylla</i>	Mex. Fire Pl.	56	Moyer 1943	HM	S. America
<i>iberica</i>		56	Perry 1943	—	Cauc.
<i>marginata</i>	Snow-on-the-Mountain	56	" "	H	N. America
 <i>x</i> = 8					
<i>altissima</i>		16	Perry 1943	—	Asia M., Syria
<i>boetica</i>		16	" "	—	Spain
<i>gerardiana</i>		{ 16	" "	—	Europe
		18	Harrison, T. 1931	—	
<i>lagascae</i>		16	Perry 1943	—	Sardinia
<i>paralias</i>	Sea Spurge	16	" "	—	W. Eur., Medit.
<i>peplus</i>	Petty Spurge	16	" "	—	Eur., Med., Siber.
<i>polychroma</i>	( <i>epithymoides</i> )	16	" "	H	E. Europe
<i>portlandica</i>	Portland Spurge	{ 16	" "	—	W. Europe
		40	Covas & S. 1947	—	
<i>procera (pilosa)</i>		16	Perry 1943	H	Eur., N. Asia
<i>pterococca</i>		16	" "	—	Medit.
<i>segetalis</i>		16	" "	H	Europe
<i>exigua</i>	Dwarf Spurge	{ 16	Wulff 1939a	—	
		24	Rutland 1941	—	
		24-26	D'Amato 1947b	H	Eur., Medit.
		28	Perry 1943	—	
<i>esula</i>		64	Reese 1952a	—	Eur., Tem. Asia
 <i>x</i> = 9					
<i>amygdaloides</i>	Wood Spurge	18	D'Amato 1939	—	Eur., Cauc., Alg.
<i>dendroides</i>		18	" 1947	—	Medit.
<i>nicaeensis</i>		18	Perry 1943	—	"
<i>pilosa</i>	Hairy Spurge	18	" "	—	W. Eur., Algeria
<i>pinea</i>		18	Harrison, T. 1931	—	Medit.
<i>rothiana</i>		18	Perry 1943	—	India
<i>terracina</i>		18	D'Amato 1947b	—	Medit.
<i>verrucosa</i>		18	Harrison 1930	—	Europe
<i>falcata</i>		36	D'Amato 1939	—	Med., Temp. Asia
<i>splendens</i>	Crown of Thorns	{ 36	Sugiura 1936a	H	Madagascar
		40	Harrison, T. 1931	—	
 <i>x</i> = 10					
<i>aphylla</i>		20	Perry 1943	H	Canary Is.
<i>biglandulosa</i>		20	" "	H	Greece, Asia M.
<i>bulbalina</i>		20	" "	—	S. Africa

# EUPHORBIA (cont.)

<i>caput-medusae</i>	Medusa's Head	20	Perry 1943	H	S. Africa
<i>characias</i>		20			Europe
<i>cereiformis</i>		20			S. Africa
<i>clava</i>		20		H	"
<i>cyparissias</i>	Cypress Spurge	20, 40	Moore & L. 1953	H	Europe
<i>glauca</i>		20	Perry 1943	—	New Zealand
<i>lathyris</i>	Caper Spurge	20		HV	S. Europe
<i>melapetala</i>		20		—	Sicily
<i>meloformis</i>	Melon Spurge	20		H	S. Africa
<i>micrantha (stricta)</i>		20		H	Eur., Medit.
<i>monteiri</i>		20		H	Trop. Africa
<i>myrsinites</i>		20		H	S. Europe
<i>nubica</i>		20		H	N. Africa
<i>obesa</i>		20		H	S. Africa
<i>palustris</i>		20		H	Europe
<i>regis-jubae</i>		20		H	Teneriffe
<i>rigida</i>		20	Harrison, T. 1931	—	Greece, Asia M.
<i>schimperiana</i>		20	Perry 1943	H	Abyssinia
<i>tirucalli</i>	Milk Bush	20	Tjio 1948	M(Ru)	Trop. Africa, (India, nat.)
<i>royleana</i>		30	Bhalla 1941	H	Himalayas
<i>barnhartii (trigona)</i>	Susuru	40		M	India, Moluc.
<i>bojeri</i>		40	D'Amato 1947b	H	Madagascar
<i>granulata</i>		40	Hagerup 1932	—	Trop. Afr. & Asia
<i>lactea</i>		40	Perry 1943	H	India
<i>similis</i>		40		H	S. Africa
<i>albaspina</i>		60		H	cult
<i>hermentiana</i>		60		H	S. Africa
<i>echinus</i>		c. 100		H	Morocco
<i>ferox</i>		c. 200		H	S. Africa

# ACALYPHA x = 7

<i>ostryaefolia (caroliniana)</i>		14	Perry 1943		N. America
<i>virginica</i>		28	" "		"
<i>wilkesiana (tricolor)</i>	Copper Leaf			H	S. Pacific Is.
<i>v. triumphans</i>		28	" "		
<i>v. musaica</i>		c. 2241	" "		
<i>fallax</i>		42	Banerji 1950b		Trop. Asia
<i>hispida</i>	Chenille Plant	c. 112	Perry 1943	HM	E. Indies

# BALIOSPERMUM x = 7

<i>axillare (montanum)</i>		28	Perry 1943	M	Ind., Siam, Java
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# SEBASTIANA x = 7

<i>ligustrina</i>		56	Perry 1943	M	N. America
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# CROTON x = 8

<i>glandulosus</i>		16	Perry 1943		N. & Tr. Amer.
<i>monanthogynus</i>		16	" "		N. America
<i>palmeri</i>		16	" "		W: N. Amer.

# MERCURIALIS x = 8

<i>annua</i>	Annual M.	16, 32	Ehrenberg 1945	MV	Eur., N. Africa
<i>leiocarpa</i>		48	Morinaga <i>et al.</i> 1929	—	Japan
<i>perennis</i>	Dog's Mercury	c. 64	Meurman 1924	M	Eur., S.W. Asia, Cauc.

<b>DAPHNIPHYLLUM</b> $x =$					
<i>macropodium</i>		32	Sugiura 1928a	H	China, Japan
<b>COLLIGUAJA</b> $x = 9$					
<i>odorifera</i>		36	Perry 1943	—	Temp. S. Amer.
<b>HEVEA</b> $x = 9$					
<i>pauciflora</i>		18, 36	Baldwin 1947a	—	Brazil
<i>brasiliensis</i>	Para-rubber T.	36 (72, 144)	Perry 1943 Mendes 1946	Ru	"
<i>collina</i>		36	Ramaer 1935	Ru	"
<i>rigidifolia</i>		36	Baldwin 1947b		
<i>spruceana</i>		36	Perry 1943		
<i>guianensis</i>		36, 54	Baldwin 1947a	Ru	Guiana
<b>HOMALANTHUS</b> $x = 9$					
<i>populneus</i>		36	Perry 1943	H	Trop. Asia
<b>MANIHOT</b> $x = 9$					
<i>carthaginensis</i>		36	Tjio 1948	—	Trop. Amer.
<i>cathartica</i>		36	Doughty 1939	M	—
<i>dulcis</i>	Sweet C.	36	" "	R	Brazil
<i>dichotoma</i>	Tiquie-Man. R.	36	" "	Ru	"
<i>glaziovii</i>	Ceara Rubber T.	36	" "	RuR	"
<i>palmata</i>		36	Bowden 1940a	R	"
<i>twediana</i>		36	Perak 1940	—	"
<i>utilissima</i>	Tapioca,	36	Graner 1935	R	"
<i>(esculenta)</i>	Cassava	(72)	" 1942		
<i>walkerae</i>		36	Perry 1943	Ru	"
<b>PEDILANTHUS</b> $x = 9$					
<i>tithymaloides</i>	Redbird Cactus	36	Perry 1943	H	W. Indies
<b>SAPIUM</b> $x = 9$					
<i>sebiferum</i>	Soap Tree	36	Perry 1943	MO	Tropics
<b>STILLINGIA</b> $x = 9$					
<i>sylvatica</i>	Queen's Delight	36	Perry 1943	HM	N. America
<b>MALLOTUS</b> $x = 9$					
<i>japonicus</i>		72	Perry 1943	DW	Japan
<b>EREMOCARPUS</b> $x = 10$					
<i>setigerus</i>		20	Heiser & W. 1948	—	W: N. Amer.
<b>RICINUS</b> $x = 10$					
<i>communis</i>	Castor Oil Pl.	20 (40)	Hagerup 1932 Sidorov & S. 1941	Fo1MO	Tropics
<i>gibsoni</i>		20	Sugiura 1936b	O	"
<i>sanguineus</i>	Red C.O.P.	20	" "	HO	"
<i>zanzibariensis</i>		20	Nemec 1910	HO	"
<b>ALEURITES</b> $x = 11$					
<i>cordata</i>	Tung (China Wood Oil T.)	22	Lapin 1937b	O	China, Japan
<i>fordii</i>	" "	22		O	China
<i>montana</i>	" "	22		IO	Trop. Asia

# ALEURITES (cont.)

<i>trisperma</i>		22	Stockar 1946	MO	Malaya
<i>moluccana</i>	Candle Nut	44	„ „	MO	„
<i>(triloba)</i>					

# CHROZOPHORA x = 11

<i>plicata</i>	Indian Turnsole	22	Bhadhuri & K. 1949	D	India
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# GELONIUM x = 11

<i>multiflorum</i>		22	Banerji 1951	—	Trop. Asia
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# JATROPHA x = 11

<i>curcas</i>	Physic Nut	22	Perry 1943	MO	Tropics
<i>gossypifolia</i>	Wild Cassada	22	„ „	HM	Trop. Amer.
<i>multifida</i>	Pinhoeu Oil	22	„ „	HOM	„

# TREWIA x = 11

<i>nudiflora</i>		22	Bhadhuri & K. 1949	—	India, Malaya
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# EXOCOECARIA x = 12

<i>acerifolia</i>		24	Perry 1943	MW	O.W. Tropics
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# SF2: PHYLLANTHOIDEAE

# PUTRANJIVA x = 7

<i>roxburghii</i>		14	Perry 1943	FoMO	Ind., Siam
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# BRIDELIA x = 7

<i>retusa</i>		28	Perry 1943	DFoW	Indo., Malaya
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# PHYLLANTHUS x = 7

<i>emblica</i>	Emblie	28	Perry 1943	DMVit	Trop. Asia
<i>carolinensis</i>		28	„ „	—	N. America

# BREYNIA (PHYLLANTHUS) x = 7

<i>nivosa</i>	Snow Bush	56	Perry 1943	H	Pac. Is.
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# FLUGGEA x = 8

<i>obovata</i>		16	Perry 1943	F	Trop. Africa
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# HALLIOPHYTUM (BERNARDIA) x = 12

<i>fasciculatum</i>		24	Perry 1943	—	W: N. Amer.
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## Group IX

### CUNONIALES

137-142

ST

### ROSALES

143-145

HST

### LEGUMINOSAE

146-148

HST



*Vicia faba*



## 137 CUNONIACEAE

<b>PANCHERIA</b> $x = 12$				
<i>sebertii</i>	24	Hamel 1952	—	New Caledonia
<b>BAUERA</b> $x = 16$				
<i>rubroides</i>	32	Smith-White unp.	H	E. Australia
<b>CERATOPETALUM</b> $x = 16$				
<i>gummiferum</i> Christmas Bush	32	Smith-White unp.	HW	E. Australia

## 139 ESCALLONIACEAE

<b>ITEA</b> $x = 11$				
<i>ilicifolia</i>	22	Bowden 1945b	H	China
<i>virginica</i> Sweet Spire	22	Schoennagel 1931	H	N. America
<b>ESCALLONIA</b> $x = 12$				
<i>macrantha</i>	24	Hamel 1949a	H	Chile
<i>rubra</i>	24	" "	H	"
<i>thyrsoidea</i>	24	" "	—	"

## 141 GROSSULARIACEAE

**RIBES** \*  $x = 8$  (no natural polyploids)

### S. 1. CURRANTS

<i>alpinum</i> Alpine C. & 1 sp.	16	Tischler 1927b	F	Eur., N. Asia
<i>aureum</i> Golden C.	16	Zielinski 1953	H	W: N. Amer.
<i>bracteosum</i> Calif. B.C.	16	" "	F	"
<i>cereum</i> Wax Currant	16	" "	H	"
<i>fasciculatum</i> Winterberry C.	16	K. Sax 1931b	H	China, Japan
<i>lacustre</i> Swamp C. & 25 spp.	16	Zielinski 1953	F	N. America
<i>nigrum</i> Black C.	32)	Vaarama 1949a	DF	Eur., N. Asia, <i>cult</i>
<i>odoratum</i> Clove C. & 2 spp.	16	Meurman 1928	H	N. America
<i>sanguineum</i> Flowering C.	16	Zielinski 1953	H	W: N. Amer.
<i>saxatile</i> Siberian C.	16	Meurman 1928	F	Siberia
<i>spicatum</i> ( <i>petraeum</i> )	16	Zielinski 1953	F	Eurasia
<i>sylvestre</i> Red & White C.	16	Meurman 1928	F	<i>cult</i>
( <i>rubrum</i> v. <i>sativum</i> )				

### S. 2. GOOSEBERRIES

<i>cynosbati</i> Prickly G. & 1 sp.	16	K. Sax 1931b	F	W: N. Amer
<i>divaricatum</i> Coast G.	16	Zielinski 1953	F	"
<i>grossularia</i> Gooseberry	16	Darlington 1929b	F	Eur., N. Afr., <i>cult</i>
<i>leptanthum</i> Trumpet G.	16	Meurman 1928	—	N. America
<i>niveum</i> & 25 spp.	16	Zielinski 1953	F	N.W: U.S.A.
<i>oxyacanthoides</i> Smooth G.	16	Darlington 1927	F	N. America
<i>setosum</i> Redshoot G.	16	Zielinski 1953	F	"

## 142 HYDRANGEACEAE

**PHILADELPHUS** \*  $x = 13$

<i>argyrocalyx</i>	26	Janaki Ammal 1951a	H	New Mexico
<i>californicus</i>	26		H	California
<i>confusus</i>	26			Washington

# PHILADELPHUS (cont.)

<i>coronarius</i>	Sw. Mock Orange	26	Bangham 1929	H	S. Europe
<i>coulteri</i>		26	Janaki Ammal 1951a	H	Mexico
<i>delavayi</i>		26	Bangham 1929	H	W. China— S.E. Tibet
<i>hirsutus</i>		26	Janaki Ammal 1951a	H	S.E. U.S.A.
<i>incanus</i>	Grey M.O.	26	Bangham 1939	H	Hupeh
<i>inodorus</i>	& 11 spp.	26	" "	H	S.E. U.S.A.
<i>laxus</i>		26	Janaki Ammal 1951a	H	"
<i>mexicanus</i>		26	" " "	H	Mexico
<i>schrenkii</i>		26	" " "	H	Manch.—Korea
<i>sericanthus</i>		26	" " "	H	S.W. China
<i>subcanus</i>		26	Bangham 1929	H	W. Szechuan
<i>v. wilsonii</i>		26	Janaki Ammal 1951a	H	Hupeh
<i>verrucosus</i>		26	" " "	—	Illinois
<i>virginalis</i>		26	Bangham 1929	H	<i>cult</i>
<i>garden forms</i>		26, 28, 39	Janaki Ammal 1951a	H	<i>cult</i>

# DEUTZIA $x = 13$

<i>gracilis</i>	26	Schoennagel 1931	H	Japan
<i>hypoglauca</i>	26	K. Sax 1931b	H	China
<i>purpurascens</i>	c. 26	" "	H	W. China
<i>sieboldiana</i>	26	" "	H	Japan
<i>parviflora</i>	26	" "	H	China
<i>v. ovatifolia</i>	78	" "		
<i>mollis</i>	78	" "	—	"
<i>discolor</i>	104	" "	—	C. China
<i>reflexa</i>	104	" "	—	China
<i>vilmorinae</i>	104	" "	H	"
<i>crenata</i> ( <i>scabra</i> )	130	Schoennagel 1931	H	Japan, China
<i>schneideriana</i>	130	K. Sax 1931b	H	C. China

# SCHIZOPHRAGMA $x = 14, 18$

<i>hydrangeoides</i>		28	M. & S. 1935	H	Japan
<i>integrifolium</i>		72	Hamel 1951b	H	China

# JAMESIA $x = 16$

<i>americana</i>		32	K. Sax 1931b	H	W: N. Amer.
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# DEINANTHE $x = 17$

<i>coerulea</i>		34	Hamel 1951b	H	China
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# HYDRANGEA\* $x = 18$

<i>arborescens</i>	& 5 spp.	36	K. Sax 1931b	H	N. America
<i>virens</i>		36	Sugiura 1931	H	Japan
<i>paniculata</i>		36	M. & S. 1935	H	"
<i>v. floribunda</i>		72	Sugiura 1936a	—	
<i>v. praecox</i>		72	K. Sax 1931b	—	

## 143 ROSACEAE

### SF1: ROSOIDEAE $x = 7, 8, 9$

# ROSA $x = 7$

## SUBGENUS 1: HULTHEMIA

<i>persica</i>		14	Täckholm 1922	H	Persia
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<b>SUBGENUS 2: PLATYRHODON</b>				
<i>roxburghii</i> ( <i>microphylla</i> )	14	Täckholm 1922	H	China, Japan
<b>SUBGENUS 3: HESPERHODOS</b>				
<i>stellata</i>	14	Erlanson 1932	H	Texas, Ariz.
v. <i>mirifica</i>	14	" "	H	New Mexico
<i>minutifolia</i>	14	" "	H	Calif.
<b>SUBGENUS 4: EUROSA</b>				
<b>S1: PIMPINELLIFOLIAE</b>				
<i>ecae</i>	14	Täckholm 1922	H	Afghanistan
<i>hugonis</i>	14	" "	H	C. China
<i>koreana</i>	14	Wylie unp.	H	Korea
<i>primula</i>	14	Erlanson 1938	H	C. Asia—N. China
<i>sericea</i> (incl. <i>omeiensis</i> )	14	Täckholm 1922	H	W. China, Himal.
<i>xanthina</i>	14	Hurst 1928	H	N. China, Korea
<i>elasmacantha</i>	28	" unp.	—	Caucasus
<i>foetida</i> ( <i>lutea</i> ) Austrian Briar	28	" 1928	H	W. Asia
v. <i>bicolor</i> Austr. Copper	28	Täckholm 1922	H	<i>cult</i>
v. <i>persiana</i> Persian Yellow	28	" "	H	<i>cult</i>
<i>rapinii</i> (incl. <i>hemisphaerica</i> ) Sulphur R.	28	Hurst 1928	H	W. Asia
<i>spinosissima</i> (incl. <i>pimpinelli-</i> <i>folia</i> ) Scotch R., Burnet R	28	Täckholm 1922	H	Eur., W. Asia
v. <i>altaica</i>	28	Hurst 1928	H	Siberia
<i>hispida</i> { 28+ 1B	28	Täckholm 1922	H	<i>cult</i>
		Wylie unp.	H	
<i>lutea</i>	28	" "	H	<i>cult</i>
<i>luteola</i>	28	" "	H	<i>cult</i>
<i>myriacantha</i>	28	Täckholm 1922	H	Spain, S. France
<b>S2: GALLICANAE</b>				
<i>centifolia</i> Cabbage R.	28	Hurst 1928	HP	<i>cult</i> (Cauc.)
v. <i>muscosa</i> Moss R.	28	Täckholm 1922	H	<i>cult</i>
<i>damascena</i> Damask R.	28	" "	HP	<i>cult</i> (Asia M.)
<i>gallica</i> French R.	28	" "	HMP	Eur., Cauc.
<i>richardii</i> ( <i>sancta</i> )	—		H	Abyssinia
<b>S3: CINNAMOMEAE</b>				
<b>(i) Old World</b>				
<i>amblyotis</i>	14	Flory 1940	H	Kamchatka
<i>banksiopsis</i>	14	Wylie unp	H	W. China
<i>begeeriana</i>	14	Täckholm 1922	H	Turkes.—N. Pers.
<i>caudata</i> { 14	14	Flory 1940	H	W. China
	28	" 1950	H	
<i>cinnamomea</i> Cinnamon R.	14	Täckholm 1922	H	Eur., N. & W. Asia
<i>corymbulosa</i>	14	Hurst 1928	H	W. China
<i>davurica</i>	14	" "	H	N. China, N.E. As.
<i>elegantula</i> (incl. <i>farreri</i> )	14	Täckholm 1922	H	W. China
<i>elymaítica</i>	14	" "	H	N. Persia
<i>giralidii</i>	14	Hurst 1928	H	C. China
<i>macrophylla</i>	14, 28	" "	H	Himalayas
<i>marretii</i>	14	" "	H	Sakhalin
<i>persetosa</i>	14	Täckholm 1922	H	W. China
<i>prattii</i>	14	Wylie unp	H	"
<i>rugosa</i>	14	Täckholm 1922	FsH	N. Ch., Kor., Jap.
<i>sertata</i>	14	" "	H	C. & W. China

# ROSA (cont.)

<i>webbiana</i>	14	Hurst 1928	H	Himal.—Turkest
<i>willmottiae</i>	14	Täckholm 1922	H	W. China
<i>bella</i>	28	" "	H	N. China
<i>davidi</i>	28	" "	H	W. China
<i>fedtschenkoana</i>	28	" "	HVit	Turkestan
<i>hawrana</i>	28	Hurst 1931	H	Hungary
<i>laxa</i> (Retz. non hort.)	28	Täckholm 1922	H	Turkestan
<i>multibracteata</i>	28	" "	H	W. China
<i>pendulina (alpina)</i>	28	" "	H	Alps
<i>saturata</i>	28	Hurst 1928	H	C. China
<i>setipoda</i>	28	Täckholm 1922	HVit	"
<i>hemsleyana</i>	42	" "	HVit	"
<i>moyesii</i>	42	" "	HVit	W. China
<i>v. fargesii</i>	28	Hurst 1928		
<i>v. rosea</i>	28	Täckholm 1922		
<i>sweginzowii</i>	42	" "	HVit	N.W. China
(ii) New World				
<i>blanda (acicularioides, subblanda)</i>	14 (21, 28)	Erlanson 1934	FsH	N.E: N. Amer.
<i>foliolosa</i>	14	Hurst 1928	H	S.E: U.S.A.
<i>gymnocarpa</i>	14	Täckholm 1922	H	W: N. Amer.
<i>nitida</i>	14	" "	H	N.E: N. Amer.
<i>palustris</i>	14	Erlanson 1929	H	E. N. Amer.
<i>pisocarpa</i> (incl. <i>ultramontana</i> )	14, 21	" 1933	H	N.W: N. Amer.
<i>woodsii</i> (incl. <i>fendleri</i> , <i>macounii</i> , <i>pyrifera</i> , <i>salictorum</i> )	14 + 0-2B, 21	" "	H	W: N. Amer.
<i>arkansana</i> (incl. <i>subglauca</i> , <i>suffulta</i> , <i>pratincola</i> )	28	" "	H	C: U.S.A.
<i>californica</i>	28	" "	H	W: U.S.A.
<i>carolina</i> (incl. <i>deamii</i> , <i>humilis</i> , <i>lucida</i> )	28	" "	H	E: N. Amer.
<i>durandii</i> (incl. <i>muriculata</i> , <i>myriadenia</i> )	28	" 1934	H	W: N. Amer.
<i>rudiuscula</i>	28	" 1929	H	E: U.S.A.
<i>virginiana</i>	28	Hurst 1928	H	N.E: N. Amer.
<i>nutkana</i> (incl. <i>melina</i> , <i>nuttalliana</i> , <i>oreophila</i> , <i>spaldingii</i> )	42	Täckholm 1922	HVit	N.W: N. Amer.
<i>manca</i>	42	" "	HVit	W: N. Amer.
(iii) Circumpolar				
<i>acicularis</i>	42, 56	Täckholm 1922	HVit	Circumpolar
<i>as bourgeauiana (sayi)</i>	42	Erlanson 1929	H	N.W: N. Amer.
<i>engelmannii</i>	42	Hurst 1928	H	"
<i>lacorum</i>	42, 56	Erlanson 1929	H	"
<i>baicalensis</i>	56	Hurst	—	C. Asia
<i>fennica (gmelinii)</i>	56	Täckholm 1922	H	Sweden
<i>tackholmii</i>	56	" "	—	"
S4: SYNSTYLAE				
<i>anemoneflora</i>	14	Täckholm 1922	H	E. China
<i>arvensis</i>	14	" "	H	Europe
<i>brunonii</i>	14	Hurst 1928	H	Himalayas
<i>cerasocarpa</i>	14	Wylie unp.	H	C. China

# ROSA (cont.)

<i>crocantha</i>		14	Wylie unp.	H	W. China
<i>filipes</i>		14	" "	H	"
<i>helenae</i>		14	Täckholm 1922	H	C. China
<i>longicuspis</i>		14	Hurst 1928	H	Himal., W. China
<i>luciae</i>		14	" "	H	E. Asia
<i>maximowicziana</i>		14	Flory 1950	FsH	Manch., Korea
<i>moschata</i>	Musk Rose	14	Täckholm 1922	HP	S. Eur., N. Africa
(incl. <i>abyssinica</i> , <i>leschenaultiana</i> , <i>nastarana</i> , <i>ruscinonensis</i> )					
<i>mulligani</i>		14	Wylie unp.	H	W. China
<i>multiflora</i>		14	Täckholm 1922	FsH	Japan, Korea
<i>phoenicia</i>		14	" "	—	Asia Minor
<i>rubus (ernestii)</i>		14	" "	H	C. & W. China
<i>sempervirens</i>	Evergreen R.	14	" "	H	S. Eur., N. Africa
<i>setigera</i>	Prairie Rose	14	" "	FsH	E: U.S.A.
<i>sinowilsonii</i>		14	Wylie unp.	H	W. China
<i>soulieana</i>		14	Hurst 1928	H	"
<i>watsoniana</i>		14	" "	H	cult (Japan)
<i>wichuraiana</i>	Memorial R.	14	Täckholm 1922	H	E. Asia
S5: CHINENSES (INDICAE)					
<i>chinensis</i>	China R., Bengal R.	14, 21, 28	Hurst 1928	H	China, cult
<i>gigantea</i>		14	" "	H	S.W. China, Bur.
<i>odorata</i>	Tea Rose	14	" "	FsH	cult (China)
S6: BANKSIANAЕ					
<i>banksiae</i>	Banksian R.	14	Täckholm 1922	H	China
<i>cymosa (microcarpa)</i>		14	Hurst 1928	H	"
S7: LAEVIGATAЕ					
<i>laevigata</i>	Cherokee R.	14	Hurst 1928	FsH	China (nat. N. Amer.)
S8: BRACTEATAЕ					
<i>bracteata</i>	Macartney R.	14	Erlanson 1929	H	China
<i>clinophylla</i>		—	—	—	India
S9: CANINAE Dog Roses, with only 14 chromosomes paired (Täckholm 1922). Subsexual, $n = 7\sigma; 21, 28, 35\sigma$ , with or without apomixis also.					
<i>rubrifolia</i>		28	Täckholm 1922	H	S. & C. Eur.
<i>sherardi (omissa)</i>		28	Blackburn & H. 1921	Vit	N. & C. Europe
<i>villosa (mollis, pomifera)</i>		28	" "	HVit	Eur., W. Asia
<i>agrestis</i>		35	Täckholm 1922	—	Eur., N. Africa
<i>britzensis</i>		35	" "	—	Kurdistan
<i>canina (s.l.)</i>	Dog Rose	35	" "	FsHVit	Europe
<i>as blandeana</i>		42	Gustafsson & H 1942		
<i>coriifolia (luxa)</i>		35	Täckholm 1922	FsHVit	Eur., W. Asia
<i>corymbifera (dumetorum)</i>		35	Blackburn & H. 1921	Vit	" "
<i>dumalis (glauca)</i>		35	Täckholm 1922	HVit	" "
<i>eglanteria</i>	Sweet Briar	35	" "	FsHVit	Europe
(rubiginosa)					
<i>glutinosa</i>		35, 42	" "	H	S.E. Eur., W. Asia
<i>horrida (ferox)</i>		35	" "	H	S.E. Eur., Cauc.
<i>inodora (elliptica, klukii)</i>		35, 42	Täckholm 1922	—	Europe
<i>micrantha</i>		35	Hurst 1928	Vit	"
<i>orientalis</i>		35	Wylie unp.	H	S.E. Eur., W. Asia

# ROSA (cont.)

<i>seraphinii</i>	35	Täckholm 1922	H	Medit.
<i>sicula</i>	35	" "	H	S. Eur., N. Africa
<i>stylosa</i>	35, 42	" "	H	Europe
<i>tomentella</i>	35	" "	Vit	"
<i>tomentosa</i>	35	Blackburn & H. 1921	HVit	"
<i>chavini</i>	42	Täckholm 1922	—	Eur., Alps
<i>marginata (jundzillii)</i>	42	" "	—	Eur., W. Asia
<i>pouzini</i>	42	Hurst 1928	—	S. Eur., N. Africa

Cultivated Roses: 14, 21, 28 Wylie 1954  
cf. Darlington 1955

# FRAGARIA $x = 7$

<i>bracteata</i>	14	Yarnell 1931a	—	W: N. Amer.
<i>californica</i>	14	Ichijima 1930	—	California
<i>campestris</i>	14	Schiemann 1951	—	Europe
<i>maxima</i>	14	Ichijima 1930	—	—
<i>helleri</i>	14	" 1926	—	W: N. Amer.
<i>mexicana</i>	14	Yarnell 1931a	—	Mexico
<i>nilgerrensis</i> Nilgiri S.	14	" 1929	—	India
<i>vesca</i> Wood S.	14	Ichijima 1926	F	Temp. Reg.
<i>v. americana</i> Amer. S.	14	" "	F	E: N. Amer.
<i>viridis (collina)</i> Eur. S.	14	Darrow 1937	—	Eur., N. Asia
<i>nipponica</i> Jap. S.	{ 14	Lilienfeld 1936	F	Japan
	28	R. Yamazaki 1936	—	Asia
<i>moupinensis</i>	28	Schiemann 1951	—	—
<i>orientalis</i>	28	Fedorova 1946	—	"
<i>moschata (elatior)</i> Hautbois S.	42	Ichijima 1926	F	Europe
<i>chiloensis</i> Pine S.	56	" "	F	Alaska—Patag.
<i>cuneifolia</i> Rocky Mt. Wild S.	56	" "	F	W: N. Amer.
<i>glauca</i>	56	" 1930	F	N. America
<i>grandiflora</i> Garden S.	56	" 1926	F	cult
<i>ovalis</i>	56	Powers 1944	—	W: N. Amer.
<i>platypetala</i>	56	Yarnell 1931a	—	"
<i>virginiana</i> Scarlet S.	56	Ichijima 1926	F	E: N. Amer.

# DUCHESNEA (FRAGARIA) $x = 7$

<i>indica</i> Mock S.	84	Ichijima 1926	H	Ind., China, Mala.
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# NEURADA $x = 7$

<i>procumbens</i>	14	Hagerup 1932	—	N. Africa, India
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# POTENTILLA\* $x = 7$ (Polyploids Apomictic)

<i>arguta</i> & 2 spp.	14	Popoff 1935	H	N. America
<i>glandulosa</i>	14	Clausen <i>et al.</i> 1937	H	W: N. Amer.
<i>heptaphylla</i>	14	Rutishauser 1943	—	Europe
<i>argentea</i> { 14, 28, 35, 42	56	Müntzing 1941	H	N. Temp.
		Håkansson 1946	—	—
<i>fruticosa</i> { 14	28	Sax 1931a	—	N. America
		Turesson 1938	—	Europe
<i>sterilis</i> { 14	28	Shimotomai 1929	—	"
		Wulff 1938	—	—
<i>alba</i> & 4 spp.	28	Popoff 1935	H	Eur., Cauc.
<i>erecta</i> Tormentil	28	L. & L. 1948	M	Eur., N. Asia

# POTENTILLA (cont.)

<i>pulchella</i>	28	L. & L. 1942		Greenland
<i>reptans</i>	28	Ehrenberg 1945		N. Temp.
<i>anserina</i> Silver Weed	28, 42	Erlandsson 1942b	HM	N. & S. Temp.
<i>crantzii</i> ( <i>alpestris</i> )	28, 42	S. & S. 1941	H	Alps, Arctic
<i>recta</i>	{ 28	Popoff 1935	H	Eur., N. Asia
	{ 42	Shimotomai 1930		
<i>egedii</i>	28, 35, 42	Erlandsson 1942b		N. Arct. & Temp.
<i>groenlandica</i>	28, 35, 42	" "		N. & Arctic
<i>arenaria</i>	28	Skalinska 1950a		N. Asia
× <i>verna</i> (apo. hybrids)	35, 42, 56	Rutishauser 1943		
	28	Håkansson 1946		
<i>tabernaemontani</i> ( <i>verna</i> )	42, 84	Müntzing 1941	H	Europe
	49	L. & L. 1942		
<i>canescens</i>	42	Rutishauser 1943		Switzerland
<i>nepalensis</i> & 15 spp.	42	Shimotomai 1930	H	Himalayas
<i>collina</i>	42, 70, 84	Müntzing 1931		Eur., Asia M.
<i>villosa</i>	42, 49	" "		C. Europe
<i>monspeliensis</i>	56	Löve 1954	H	N. America
<i>bifurca</i>	56	Popoff 1935		Cauc., N. Asia
<i>curdica</i>	56			" "
<i>argyrophylla</i>	56, 63		H	Himalayas
<i>atrosanguinea</i>	56, 63		H	"
<i>chamissonis</i>	{ 56	Bøcher & L. 1950		Arctic
	{ 77	L. & L. 1948		
<i>gracilis</i>	52-109	Clausen <i>et al.</i> 1940	H	W: N. Amer.
	{ 56	Erlandsson, L. & L. 1942		
<i>nivea</i>	{ 63	Bøcher & L. 1950	H	Arctic & Alpine
	{ 70	Sakai 1934		
<i>drummondii</i> & 4 spp.	64-108	Clausen <i>et al.</i> 1940	H	W: N. Amer.
<i>norvegica</i>	70	Gentcheff 1938	H	N. Eur.
<i>sibthorpiana</i>	98	Shimotomai 1930	—	Japan
<i>haematochroa</i>	112		H	Mexico

## COMARUM (POTENTILLA) $x=7$

<i>palustre</i> Marsh Cinquefoil	28	Ehrenberg 1945	H	N. Temp.
	42-64	S. & S. 1941		

## SIBBALDIA (POTENTILLA) $x=7$

<i>procumbens</i>	{ 14	Bøcher 1938a	—	N. & S. Reg.
	{ 14	S. & S. 1941		

## RUBUS\* $x=7$ (Polyploids often Apomictic)

<i>allegheniensis</i> & 2 spp.	14	Einset 1947	F	E: N. Amer.
<i>arcticus</i> Arctic Bramble	14	Vaarama 1939	F	Arctic
<i>argutus</i> & 4 spp.	14	Longley 1924a	F	E: N. Amer.
<i>coreanus</i> Korean R.	14	Marks 1952	F	China, Korea
<i>gracilis</i>	14	"	F	Asia
<i>hirsutus</i> & 7 spp.	14	Jinno 1951a, b	F	Japan
<i>kuntzeanus</i>	14	Darrow 1937	F	Asia
<i>lasiostylus</i>	14	Longley & D. 1924	F	China
<i>laudatus</i> Kinoyer B. & 2 spp.	14	Yarnell 1931c, 1936	F	N. America
<i>leucodermis</i> White Bark R. & 2 spp.	14	Darrow & L. 1333	F	W: N. Amer.
<i>neglectus</i> Purple Cane R. & 2 spp.	14	Crane & D. 1927	F	N. America

**RUBUS (cont.)**

<i>xanthocarpus</i> & 3 spp.	14	Gustafsson '33, '43	F	China
<i>stellatus</i> & 9 spp.	14	Vaarama 1954	F	N. America
<i>canadensis</i> Thornless Mt. B.	{ 14 21	Longley 1924a Einset 1947	F	N. America
<i>idaeus</i> European Raspberry	14, 21, 28	Crane 1936	F	Eur., N. & S.W Asia
<i>macrothyrsus</i>	14, 28	Maude 1939	—	Europe
<i>strigosus</i> Amer. Red R.	{ 14 21	Longley & D. 1924 Einset 1947	F	N. America
<i>ulmifolius (rusticanus)</i>	14, (28)	Heslop-Harrison '53	F	Europe
<i>avipes</i> & 5 spp.	21	Einset 1947	F	N. America
<i>deliciosus</i> Rocky Mt. R.	21	Longley 1924a	H	W: N. Amer.
<i>merceri</i> & 1 sp.	21	Christen 1950	—	Europe
<i>nigricans</i>	21	Longley 1924a	F	W: N. Amer.
<i>nitidus</i> & 4 spp.	21	Heslop-Harrison '53	H	Europe
<i>thyrsiflorus</i> & 2 spp.	21	Gustafsson 1939	H	"
<i>bellobatus</i>	21, 28	Einset 1947	—	N. America
<i>thyrsanthus</i>	{ 21 28	Gustafsson 1943 Heslop-Harrison 1953	—	Europe
<i>affinis</i>	28	" "	F	Eur., Himal.
<i>bifrons</i> & 2 spp.	28	Christen 1950	—	Europe
<i>bloxamii</i> & 3 spp.	28	Datta 1932	F	"
<i>lentiginosus</i>	28	Maude 1939	F	"
<i>nemorosus</i> Caucasian D.	28	Gustafsson 1933	F	"
<i>omeiensis</i> & 2 spp.	28	Marks 1952	F	China
<i>pennsylvanicus</i> & 5 spp.	28	Einset 1947	F	N. America
<i>procerus</i> Him. B. & 2 spp.	28	Crane 1936	F	
<i>sachalinensis</i> Siberian R.	28	Rozanova 1939	F	N. Asia
<i>salteri</i>	28	Maude 1939	F	Europe
<i>sieboldii</i>	28	Jinno 1951a	F	Java
<i>tephrodes</i>	28	Vaarama 1954	—	E. Asia
100 spp.	28	{ Fabergé, M. 1939 Gustafsson 1942 Heslop-Harrison 1953		
<i>ambifarius</i>	28, 35, 42	Gustafsson 1939	—	Europe
<i>caesius</i> Eur. Dewberry	28, 35	Heslop-Harrison 1953	F	Eur., N. Asia
<i>balfourianus</i>	28, 35	" "	—	Europe
<i>bellardii</i>	{ 28 35	" "	—	Eur.—Persia
<i>conjungens</i>	28, 35	Gustafsson 1939	—	Europe
<i>hartmani (horridus)</i>	{ 28 35	Heslop-Harrison 1953	—	"
<i>infestus</i>	28, 42	Heslop-Harrison 1953	—	"
<i>formidabilis</i>	{ 28 35	Maude 1939	—	"
<i>granulatus (bloxamianus)</i>	{ 28 42	Heslop-Harrison 1953	—	"
<i>newbridgensis</i>	28, 35	Maude 1939	—	"
<i>nitidioides</i> Merton Early Bl.	{ 28 42	Heslop-Harrison 1953	—	"
<i>obcuneatus (cenomanensis)</i>	{ 28 35	Maude 1939	F	England
		Heslop-Harrison 1953	—	Europe

# RUBUS (cont.)

<i>ostenfeldii</i>	28, 42, c. 44	Gustafsson 1939	—	Europe
<i>pyramidalis</i>	28, (42)	Heslop-Harrison 1953	—	"
<i>rosanthus</i>	28, 35	Gustafsson 1939	—	"
<i>magnificus (borreri)</i>	{ 28	Fabergé, M. 1939	F	"
	{ 42	Heslop-Harrison 1953	F	"
<i>idaeus</i> × <i>caesius</i>	28, 35, 42	Rozanova 1940a	F	expt.
<i>abactus</i> & 3 spp.	35	Einset 1947	—	N. Amer.
<i>corylifolius</i>	35	Datta 1932	F	Europe
<i>dumetorum</i> & 5 spp.	35	Marks 1952	—	"
<i>vestervicensis</i> & 4 spp.	35	Gustafsson '39. '42	F	"
<i>wiegandii</i>	36	Einset 1947	—	N. America
13 spp.	35	Heslop-Harrison 1953	—	Europe
<i>britannicus</i>	42	"	—	"
<i>divergens</i> & 3 spp.	42	Gustafsson 1933	F	"
<i>loganobaccus</i> Loganberry	42	Thomas 1940	F	cult
<i>pectinellus</i>	42	Jinno 1951a	—	Japan
<i>meracus</i>	49	Einset 1947	—	N. America
<i>hispidus</i> Swamp Bl.	35, 56	Longley 1924a	F	"
<i>buergeri</i> & 2 spp.	56	Jinno 1951a, b	—	Japan
<i>chamaemorus</i> Cloudberry	56	Heslop-Harrison 1953	F	North & Arctic
<i>ursinus</i> Pacific D.	42, 56, 84	Gustafsson 1943	F	W: N. Amer.
<i>flagellaris</i>	63	Einset 1947	—	N. America
<i>plicatifolius</i>	63	" "	—	"
<i>lemurum</i>	84	S.W. Brown 1943	F	Cent. Calif.

# WALDSTEINIA x = 7

<i>geoides</i>	14	Reese 1952a	H	E. Europe
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# AGRIMONIA x = 7

<i>eupatoria</i> Agrimony	28	Maude 1940	M	Europe
<i>odorata</i>	56	Wulff 1939b	—	Europe, W. Asia N. Africa

# GEUM\* x = 7

<i>heterocarpum</i>	28	Gajewski 1949	H	Medit.
<i>montanum</i>	28	" "	H	S. Europe
<i>rhodopeum</i>	28	" "	—	Bulgaria
<i>coccineum</i> & 2 spp.	42	R. Yamazaki 1936	H	Chile
<i>macrophyllum</i> & 5 spp.	42	Gajewski 1949	H	N. Temp.
<i>rivale</i> Water Avens & 7 spp.	42	Raynor 1952	—	" "
<i>urbanum</i> Avens, Herb Bennet	42	" "	—	" "
<i>quellyon</i>	{ 42	" "	—	" "
	{ 70	Gajewski 1949	—	" "
<i>pyrenaicum</i>	56, 84	" "	H	Pyrenees
<i>magellanicum</i>	{ 84	" "	H	S: S. Amer.
	{ 84	Raynor 1952	H	

# SANGUISORBA (POTERIUM) x = 7

<i>hakusanensis</i>	28	Sakai 1935	—	Japan
<i>minor</i> Salad Burnet	28	Lindenbein 1937	Sp	N. Temp.
<i>officinalis</i> Great B.	28	Nakajima 1936	H	Europe, N. Asia N. America
<i>albiflora</i>	54?	M. & S. 1936	—	Japan

# **FILIPENDULA** $x = 7, 8$

<i>ulmaria</i>	Meadowsweet	{ 14 Wulff 1938	HM	Eur., N. Asia
		{ 16 Vaarama, L. & L. 1948		
<i>vulgaris</i>	Dropwort	{ 14 Wulff 1938	MR	
		{ 15! Maude 1940		

# **ALCHEMILLA** $x = 8$ (All species Apomictic)

<i>glomerulans</i>		c. 64 Bøcher 1938a	—	Europe
<i>glabra (vulgaris)</i>		{ c. 90 L. & L. 1942	—	"
		{ c. 100 Ehrenberg 1945	—	"
<i>vulgaris s.l. Lady's Mantle</i>	91-191	Gentscheff & G. 1940	H	Eurasia
<i>micans</i>		c. 93 Ehrenberg 1945	—	France, Switz.
<i>subcrenata</i>	c. 90, c. 96	L. & L. 1948	—	Europe
<i>acutiloba</i>		c. 100 Ehrenberg 1945	—	Eur., W. Asia
<i>monticola (pastoralis)</i>		101 "	—	"
<i>alpina</i>		c. 120 Gentscheff & G. 1940	—	Alps, N. "Europe

# **APHANES (ALCHEMILLA)** $x = 8$

<i>microcarpa</i>		16 Gudjonsson 1941	—	Spain
<i>arvensis</i>	Parsley Pier	{ 48 "	—	N. Temp.
		{ 48, 50 Gentscheff & G. 1940		

# **CERCOCARPOS** $x = 9$

<i>betuloides</i>	Mt. Mahogany	18	Morley 1949	H	Calif.
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# **DRYAS** $x = 9$

<i>caucasica</i>		18	S. & S. 1940	—	Caucasus
<i>integrifolia</i>		18	Bøcher & L. 1950	H	N. Am., Greenld
<i>octopetala</i>		18	Maude 1940	BH	North Reg.

# **KERRIA** $x = 9$

<i>japonica</i>		18	Sugiura 1936b	H	C. & W. China
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# **RHODOTYPOS** $x = 9$

<i>scandens</i>	Jet Bead	18	Sax 1932	H	Japan
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## **SF2: PRUNOIDEAE** $x = 8$

<i>cerasiformis</i>	Osoberry	16	Moffett 1931b	H	W: N. Amer.
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# **MADDENIA** $x = 8$

<i>hypoxantha</i>	Madden Cherry	32	Sax 1931a	—	China
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# **PRINSEPIA** $x = 8$

<i>uniflora</i>		32	Sax 1931a	—	Mongolia
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# **PRUNUS** $x = 8$

## **S1: ALMONDS AND PEACHES**

<i>amygdalus</i>	Almond	16	Darlington 1930	HNO	S.W. Asia
<i>fenzliana</i>		16	" "	H	Caucasus
<i>persica</i>	Peach, Nectarine	16	" "	FHO	W. China ( <i>cult</i> )
<i>nana (tenella)</i>	Russian A.	16	Kobel 1928	HN	Eur., Siberia
<i>triloba</i>	Flowering A.	64	" "	H	China

## **S2: PLUMS**

<i>alleghaniensis</i>	Allegheny P.	16	Sax 1931a	F	N.E. U.S.A.
<i>americana</i>	Goose P.	16	" "	F	"

# **PRUNUS (cont.)**

<i>armeniaca</i>	Apricot	16	Darlington 1928	F	Caucasus
<i>hortulana</i>		16	Sax 1931a	F	C: U.S.A.
<i>maritima</i>	Bead P.	16	" "	F	E: U.S.A.
<i>nigra</i>	Canada P.	16	Kobel 1928	F	"
<i>triflora</i>	Jap. P.	16	Darlington 1930	F	China
<i>as salicina</i>		16	Weeks 1941		
<i>mume</i>	Jap. Apricot	16, 24	Okabe 1928	F	Japan
<i>divaricata</i>	Myrobalan,	16, 17, 24	Rybin 1936	FFs	Caucasus
( <i>cerasifera</i> )	Cherry P.				
<i>caspiaca</i>		16	Kovalev 1939	F	Persia
<i>iranica</i>		16	" "	F	"
<i>media</i>		32	" "	F	"
<i>spinosa</i>	Sloe, Blackthorn	32	Darlington 1930	FW	Eur., N. Africa,
nat. hybrids	16, 24, 40,	48	Mather 1937		W. Asia
<i>insititia</i>	Damson	48	Darlington 1928	FFs	Eur., A. Minor
<i>as italica</i>		48	Kobel 1927		
<i>domestica</i>	European P.	48	Darlington 1930	F	<i>cult</i>
<i>divaricata</i> × <i>spinosa</i>		24, 48	Rybin 1936	F	Caucasus

## **S3: CHERRIES**

<i>cerasoides</i> ( <i>puddum</i> )		16	Okabe 1928	F	Himalayas
<i>crassipes</i>		16	" "	F	Japan
<i>glandulosa</i>	Almond C.	16	Sax 1931a	—	W: N. Amer.
<i>incana</i>	Underwood C.	16	" "	F	Caucasus
<i>japonica</i>		16	" "	F	Japan, China
<i>kurilensis</i>	Takane C.	16	Okabe 1928		Japan
<i>lannesiana</i>	Jap. Flower. C.	16	Darlington 1030	H	"
<i>mahaleb</i>	Mahaleb C.	16	" 1928	Fs	S. Europe,
					S.W. Asia
<i>mutabilis</i>	Jap. Flower. C.	16	Okabe 1928	F	Japan
<i>pumila</i>	Sand C.	16	Kobel 1928	F	N: U.S.A.
<i>sachalinensis</i>	Sargent C.	16	Okabe 1928	F	Japan
<i>subhirtella</i>	Higan C.	16	" "	F	"
<i>tomentosa</i>	Manchu C.	16	" "	F	E. Asia
<i>yedoensis</i>	Yoshino C.	16	" "	—	Japan
<i>incisa</i>	Fuji C.	16	Sax 1931a	F	"
<i>as itosakura</i>		16, 24	Okabe 1928		
<i>paniculata</i>	Jap. Fl. C.	16, 24	" "	FHP	"
( <i>serrulata</i> )					
<i>as pseudocerasus</i>	Yung fo	32	" "		
<i>avium</i>	Sweet C.,	16, 24, 32	Darlington 1928,	FHTo	Europe, S.W.
	Mazzard		1933b		Asia, <i>cult</i>
<i>cerasus</i>	Sour C., Morello	32	Darlington 1928	F	Eur., S.W. Asia
<i>cantabrigiensis</i>	Chin. Early C.	32	Crane & L. 1938	F	China
<i>fruticosa</i>	Ground C.	32	Darlington 1928	F	S. Eur., N. Asia

## **S4: BIRD CHERRIES**

<i>grayana</i>	Jap. Choke C.	32	Okabe 1928	F	Japan
<i>padus</i>	Bird C., Hagberry	32	Kobel 1928	HF	Eur., N. Amer.
<i>serotina</i>	Capuli	32	" 1927	FMW	N. America
<i>ssiori</i>	Sakhalin C.	32	Okabe 1928	F	Sakhalin
<i>virginiana</i>	Amer. Choke C.	32	Sax 1931a	F	N. America

## **S5: CHERRY LAURELS**

<i>lusitanica</i>	Portugal L.	64	Almeida 1947a	H	Portugal
<i>laurocerasus</i>	Cherry Laurel c.	176	Meurman 1929	HMSp	S.W. Asia

**SF3: SPIRAEOIDEAE:  $x = 8, 9$**

**EXOCHORDA  $x = 8$**

*giraldii* Pearl Bush 16 Sax 1931a H China

**PENTACTINA  $x = 9$**

*rupicola* 18 Sax 1931a Korea

**PHYSOCARPUS (SPIRAEA)  $x = 9$**

*capitatus* Ninebark 18 Sax 1931a H W: N. Amer.  
*intermedius* " 18 " " — C: N. Amer.  
*monogynus* " 18 " " H N. America  
*stellatus* " 18 " " W: N. Amer.

**SIBIRAEA (SPIRAEA)  $x = 9$**

*laevigata* 18 Sax 1931a H Siberia

**SPIRAEA  $x = 9$**

**Old World Group**

*cana* 18 Sax 1936 H S. Europe  
*gemmata* 18 " " H China  
*hypericifolia* 18 " " H S.E. Eur., T. Asia  
*japonica* 18 " " H Him., Ch., Jap.  
*media* 18 " " H E. Eur.—N.E. As.  
*miyabei* 18 " " H Japan  
*mollifolia* 18 " " H China  
*nipponica* 18 " " H Japan  
*prunifolia* 18 " " H Japan, China  
*pubescens* 18 " " H China  
*thunbergii* 18 " " H China, Japan  
*chamaedryfolia* 18, 36 " " H N.E. Asia  
*salicifolia* 36 " " H Eur.—Japan  
*myrtilloides (virgata)* 54 " " H China

**New World Group**

*corymbosa* (3x) 27 " " H E: N. Amer.  
*alba* White M. 36 " " H "  
*douglasii* 36 " " H W: N. Amer.  
*latifolia* Meadowsweet 36 " " HM E: N. Amer.  
*tomentosa* 36 Bowden 1945b H "

**SF4: POMOIDEAE:  $x = 17$**

**CHAENOMELES (CYDONIA, PYRUS)  $x = 17$**

*cathayensis* 34 Moffett 1931a FH C. China  
*japonica* 34 " " H Japan  
*sinensis* Chinese Quince 34 Sax 1931a F — China  
*speciosa* Jap. Quince 34 Moffett 1931a FH China,  
*(lagenaria)* (Japan, cult)

**CYDONIA  $x = 17$**

*oblonga* Quince 34 Moffett 1931a FFsM Turkestan,  
N. Persia cult

**ERIOBOTRYA  $x = 17$**

*japonica* Loquat 34 Moffett 1931a FH Japan, China

<b>MESPILUS</b> $x = 17$					
<i>germanica</i>	Medlar	34	Moffett 1931a	F	E. Eur., S.W. Asia
<b>OSTEOMELES</b> $x = 17$					
<i>schwerinae</i>		34	Moffett 1931a	H	W. China
<b>PYRACANTHA</b> $x = 17$					
<i>atalantoides</i> ( <i>gibbsii</i> )		34	Moffett 1931a	H	China
<i>coccinea</i>	Fire Thorn	34	" "	H	S. Eur., Asia M.
<b>QUILLAJA</b> $x = 17$					
<i>brasiliensis</i>		34	Bowden 1945b		Brazil
<b>RAPHIOLEPIS</b> $x = 17$					
<i>delacourii</i>		34	Moffett 1931b	H	<i>cult</i>
<i>indica</i>	Ind. Hawthorn	34	" "	FHM	S. China
<i>umbellata</i>	Yeddo H.	34	" "	H	Japan
<b>STRANVAESIA</b> $x = 17$					
<i>claviana</i>		34	Moffett 1931a	H	W. China
<b>AMELANCHIER</b> $x = 17$					
<i>asiatica</i>		34	Sax 1931a	FH	E. Asia
<i>humilis</i>		34	" "	F	N. America
<i>oblongifolia</i>	June Berry	34	" "	FH	E: N. Amer.
<i>sanguinea</i>		34	" "	H	N. America
<i>stolonifera</i>		{ 34	" "	FH	E: N. Amer.
		{ 68	Moffett 1931a		
<i>canadensis</i>	Shad	68	" "	FH	
<i>laevis</i>		68	" "	FH	
<i>ovalis</i> ( <i>rotundifolia</i> )	Service B.	68	" "	F	C. & S. Europe
<i>spicata</i>		68	Sax 1931a	H	<i>cult</i>
<b>ARONIA</b> $x = 17$					
<i>hybrida</i>		34	Moffett 1931a	H	<i>cult</i>
<i>melanocarpa</i>	Black Chokeberry	34		H	E: N. Amer.
<i>arbutifolia</i>	Red C.	{ 34	Sax 1931a		
		{ 68	Moffett 1931a	H	
<b>COTONEASTER*</b> $x = 17$ (Polyploids Apomictic)					
<i>procumbens</i>		34	Moffett 1931a	H	
<i>congestus</i> (3x)		51	" "	H	Himalayas
<i>bullatus</i>		68	" "	H	S.E. Tib.—W. Ch
<i>integerrimus</i> ( <i>vulgaris</i> )		68	" "	—	Eur., N. Asia
<i>microphyllus</i>		68	" "	H	Himalayas
<i>acutifolius</i> & 23 spp.	34, 51, 68	H. J. Sax 1954		H	China
<b>CRATAEGUS</b> $x = 17$					
<i>chlorosarca</i>		34	Moffett 1931a	H	Manchuria
<i>lavallei</i>		34	Sax 1931a	H	<i>cult</i>
<i>oxyacantha</i>	Hawthorn	34	Moffett 1931a	BFsW	Eur., Temp. Asia
<i>stipulosa</i>		34	" "	H	Mexico
<i>monogyna</i>		34	" "		Eur., Temp. Asia
<i>v. cabulica</i> (3x)		51	" "		
<i>douglasii</i> (3x)	Michigan H.	c. 51	Longley 1924b	F	Mich., W: N. Am.
<i>intricata</i>	Thicket H.	c. 51	" "	F	E: U.S.A.

# CRATAEGUS (cont.)

<i>apposita</i>	Delaware H.	68	Moffett 1931a	—	N. America
<i>cognata</i>		68	" "	H	"
<i>crus-galli</i>	Cockspur H.	68	" "	H	"
<i>pedicellata</i>	Ontario H.	68	" "	—	"
<i>pruinosa</i>	Frosted H.	68	" "	H	E: U.S.A.
<i>phaenopyrum</i>	Washington H.	(72)	" "	H	N. America

# MALUS x = 17

<i>adstringens</i>	Crab Apple	34	Sax 1931a	F	<i>cult</i>
<i>asiatica</i>	Oriental C.	34	Köbel 1927	F	N. Asia
<i>baccata</i>	Siberian C.	34	Sax 1931a	FH	Himal., N. Asia
<i>floribunda</i>	Flowering C.	34	Darlington & M. '30	FH	China
<i>fusca</i>	Oregon C.	34	Nebel 1929	—	N. America
<i>halliana</i>		34	" "	FH	China, Japan
<i>ioensis</i>	Prairie C.	34	" "	FH	N. America
<i>niedzwetzkyana</i>		34	" "	FH	S.W. Sib., Cauc.
<i>zumi</i>	Zumi Crab	34	Rybin 1926	FH	Japan
<i>prunifolia</i>	Plum Leaf C.	34, 51	Nebel 1929	FH	N.E. Asia
<i>sylvestris</i>	Apple	34, 51	Darlington & M. '30	F	Afghan., <i>cult</i>
<i>(pumila)</i>	266 vars.	34	Einset & I. '47, '49,		
	18 vars.	51	Einset & L. '51		
	15 vars.	34/68	(chimaeras) "		
<i>angustifolia</i>	Southern C.	{ 34	Rybin 1926	F	N. America
		{ 68	Sax 1931a		
<i>coronaria</i>	American C.	51, 68	Dermen 1949	FH	"
<i>platycarpa</i>		{ 51	" "	FH	"
		{ 68	Lincoln & M. 1937		
<i>hupehensis</i>		51, 68	Dermen 1936c	FH	China
<i>lancifolia</i>		51, 68	" 1949	FH	N. America
<i>sargentii</i>		34, 68	Nebel 1930	FH	Japan
<i>glaucescens</i>		68	Sax 1931a	FH	E: N. Amer.
<i>sieboldii</i> (5x)		85	Olden 1945	FH	Japan

# PYRUS x = 17

<i>aromatica</i>		34	Adati 1933	F	Japan
<i>betulifolia</i>		34	" "	FHV	China
<i>calleryana</i>	Callery P.	34	" "	F	Japan
<i>dimorphophylla</i>		34	" "	F	"
<i>eleagrifolia</i>	Oleaster P.	34	Rybin 1927	FH	Asia Minor
<i>fauriei</i>	Korean P.	34	Adati 1933	F	E. Asia
<i>hondoensis</i>		34	" "	F	Japan
<i>nivalis</i>	Snow P.	34	Rybin 1927	FH	N. Asia, Himal.
<i>phaeocarpa</i>		34	Adati 1933	FH	N. China
<i>pyrifolia</i>	Sand P.	34	" 1935	FH	Java
<i>salicifolia</i>		34	Köbel 1927	FH	Caucasus
<i>sohayakiensis</i>		34	Adati 1933	F	Japan
<i>ussuriensis</i>	Chinese P.	34	Rybin 1927	FH	China
<i>uyematsuana</i>		34	Adati 1933	F	<i>cult</i>
<i>communis</i>	Pear	34, 51	Darlington & M. '30	F	Afghan., <i>cult</i>
		34/68	Marks 1953		

# PHOTINIA x = 17

<i>glabra</i>	Jap. Medlar	34	K. 1931	H	Japan
<i>villosa</i>		68	Moffett 1931a	H	China, Korea, Jap

**SORBUS (PYRUS)  $x = 17$  (Apomixis, obligatory in triploids)**

<i>alnifolia</i>		34	Sax 1931a	H	Japan, Korea
<i>americana</i>	American M.A.	34	" "	H	E: U.S.A.
<i>aria</i>	White Beam	34	Moffett 1931a	FH	C. & S. Europe
<i>aucuparia</i>	Rowan, Mt. Ash	34	" "	BFH	Eur., Asia Minor, N. Africa
<i>confusa</i>		34	Poucques 1951		?
<i>domestica</i>	Service Tree	34	Moffett 1931a	HW	Eur., N. Africa
<i>latifolia</i>		34	Poucques 1951	H	Europe
<i>torminalis</i>	Wild Service T.	34	Moffett 1931a	FH	S. & C. Europe
<i>bristoliensis</i>		51	Warburg 1952		W. England
<i>lancifolia</i>		51	Liljefors 1934		Norway
<i>minima</i>		51	Moffett 1931b		Wales
<i>mougeotii</i>		51	Liljefors 1934	H	C. Europe
<i>porrigentiformis</i>		51, 68	Warburg 1952	—	Wales, W. Eng.
<i>anglica</i>		68	" "		
<i>chamaespilus</i>		68	Liljefors 1934	H	C. Europe
<i>decora</i>		68	Bøcher & L. 1950	H	E: U.S.A.
<i>eminens</i>		68	Warburg 1952	—	W. England
<i>hybrida (fennica)</i>		68	Liljefors 1934	H	N. Europe
<i>intermedia (suecica)</i>		68	" "	H	N.W. Europe
<i>leptophylla</i>		68	Warburg 1952		Wales
<i>meinichii</i>		68	Liljefors 1934		N. Europe
<i>obtusifolia (aria v. norvegica)</i>		68			Scandinavia
<i>rupicola (salicifolia)</i>		68			W. Europe
<i>sudetica</i>		68			C. Europe

**AMELASORBUS (AMELANCHIER  $\times$  SORBUS)  $x = 17$**

<i>jackii</i>		34	Sax & S. 1947	H	W: N. Amer.
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**SORBARONIA (SORBUS  $\times$  ARONIA)  $x = 17$**

<i>alpina</i>		34	Sax & S. 1947	H	<i>cult</i>
<i>dippelii</i>		34	" "	H	
<i>jackii</i>		34	" "	H	

## 145 CALYCANTHACEAE

**CHIMONANTHUS  $x = 11$**

<i>fragrans</i>	Jap. Allspice, Winter Sweet	22	Sugiura 1931	HSp	Japan
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**CALYCANTHUS  $x = 11$**

<i>fertilis</i>		22	Sax 1933b	HSp	N. America
<i>occidentalis</i>	Cal. Allspice	22	Cave 1948a	HSp	California
<i>floridus</i>	Carolina All.	22	Sax 1933b	HSp	N. America
<i>v. ovatus (3x)</i>		33	" "	HSp	

## 146 CAESALPINACEAE

**CERCIS  $x = 6, 7$**

<i>canadensis</i>	Red Bud	12	Senn 1938	H(V)	E: N. Amer.
<i>occidentalis</i>		14	Atchison 1949a	H	S.W: N. Amer.
<i>siliquastrum</i>	Judas Tree	14	Corti 1930b	H(V)	S. Eur.—N. Persia

CASSIA  $x = 6, 7, 8$   $x_3 = 13$

<i>auriculata</i>	Avarum	{ 14, 16 28	Jacob 1940 Pantulu 1942	DMMa	India
<i>chamaecrista</i> & 1 sp.		16	Senn 1938	—	S: U.S.A.
<i>dimidiata</i>		16	Sugiura 1931	—	Tropics
<i>mimosoides (leschenaultiana)</i>		16, 32, 48	Kawakami 1930	BMa	"
<i>alata</i>	Ringworm Plant	24	Senn 1938	M(Sh)	"
<i>antillana</i>		24	Atchison 1951	—	W. Indies
<i>atomarica</i>		c. 24	" "	—	S. America
<i>egregia</i>		24	Covas & S. 1946	—	"
<i>fastuosa</i>		24	Atchison 1951	—	Trop. America
<i>nodosa</i>	Jointwood	24	" "	ShMW	Trop. Asia
<i>renigera</i>		24	" "	H	Upper Burma
<i>tomentosa</i>		24	Sugiura 1931	Ma	Trop. America
<i>fistula</i>	Ind. Laburnum	{ 24 28	Tischler 1922 Pantulu 1946	DHM	Trop. Asia
<i>sophora</i>		{ 24 28	Kawakami 1930 Pantulu 1948	H	O.W. Tropics
<i>obtusifolia</i>		26	Pantulu 1942	Ma(V)	Tropics
<i>splendida</i>		26, 52	Covas 1949b	H	Brazil
<i>occidentalis</i>	Nigger Coffee	{ 26 28	Muto 1929 Pantulu 1940	BMaV	Tropics
<i>tora</i>	Tavara	{ 26 28	Datta 1933b Jacob 1940	DMa(V)	"
<i>angustifolia</i>	Indian Senna	28	Sampath & R. 1949	M	India, Afr., Arabia
<i>corymbosa (floribunda)</i>		28	Atchison 1951	H	Argentina
<i>didymobotrya</i>		28	Sethi 1930	HMaSh	Abyssinia
<i>grandis</i>	Pink Shower	28	Atchison 1951	HM	Panama
<i>hirsuta</i>		{ 28 56	Frahm-Leliveld 1953 Sampath & R. 1949	H	Trop. America
<i>javanica</i>	Java Cassia	28	Ramanathan 1950	HShM	E. Indies
<i>marginata</i>	Red Cassia	28	Atchison 1951	DShW	Trop. Asia
<i>moschata</i>		28	" "	—	Trop. America
<i>obtusata</i>		28	Ramanathan 1950	—	O.W. Tropics
<i>siamea</i>	Kassod Tree	28	Atchison 1951	DShVW	Mal., E. Indies
<i>torosa</i>		28	Nakajima	Ma	Tropics
<i>glauca</i>		28, 56	Pantulu 1942	H	Tr. Asia, Austral.

LYSIDICE  $x = 8$

<i>rhodostegia</i>		16	Atchison 1951	—	S. China
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SINODORA  $x = 8$

<i>supa</i>		16	Atchison 1951	—	Philippines
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TRACHYLOBIUM  $x = 8$

<i>verrucosum</i>	Zanzibar Copal	16	Atchison 1951	Re	Trop. Africa
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PTEROGYNE  $x = 10$

<i>nitens</i>		{ 20 20	Atchison 1941 Covas & S. 1947	—	Brazil
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AMBURANA  $x = 11$

<i>cearensis</i>		22	Covas & S. 1947	W	Brazil
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<b>PHYLLOCARPUS</b> $x = 11$					
<i>septentrionalis</i>		22	Atchison 1951	H	Guatemala
<b>CAESALPINIA</b> $x = 11, 12$					
<i>japonica</i>		22	Sakai 1951	H	Japan
<i>bahamensis</i>		24	Atchison 1951	—	W. Indies
<i>bonduc</i>	Nicker-Nut	24		DHM	"
<i>coriaria</i>	Divi-divi	24		DHW	Dry Trop. Amer.
<i>crista</i>	Wood Gossip	24		DM	Tropics
<i>ferrea</i>		24		—	Brazil
<i>floribunda</i>		24	Covas & S. 1947		
<i>gilliesii</i>		24	" 1946	H	Argentina
<i>mexicana</i>		24	Atchison 1951	H	Mexico
<i>pauciflora</i>		24			W. Indies
<i>paucijuga</i>		24			"
<i>pulcherrima</i>	Peacock Flower	24		HM	Tropics
<i>vesicaria</i>		24		—	Cuba
<i>rubicunda</i>		24	Covas 1949b	—	Brazil
<i>sappan</i>	Sappan Wood	24	Ghose 1952	D	India, Malaya
<b>AMHERSTIA</b> $x = 12$					
<i>nobilis</i>	Tree of Heaven	24	Pantulu 1943	H	Burma
<b>BROWNEA</b> $x = 12$					
<i>coccinea (hybrida)</i>		24	Atchison 1951	HM	Venezuela
<b>CERATONIA</b> $x = 12$					
<i>siliqua</i>	Carcu, Locust Bean	24	Almeida 1948	DFFoSh	S. Eur., S.W. Asia
<b>COPAIFERA</b> $x = 12$					
<i>officinalis</i>	Copaiba-Balsam, Maracaibo	24	Atchison 1951	ReW	Trop. S. Amer.
<b>ERYTHROPHLOEUM</b> $x = 12$					
<i>guineense</i>	Red Water Tree	24	Atchison 1951	H	Fr. W. Africa
<b>HAEMATXYLON</b> $x = 12$					
<i>campechianum</i>	Logwood	24	Atchison 1951	DW	Trop. America
<b>HOFFMANSEGGIA</b> $x = 12$					
<i>andina</i>		24	Covas & S. 1946	—	Chile
<i>falcaria</i>		24		—	Chile, Peru
<b>HYMENAEA</b> $x = 12$					
<i>courbaril</i>	Locust Tree Anime Resin	24	Atchison 1951	HReW	Tr. Amer., W. Ind.
<b>INTSIA</b> $x = 12$					
<i>africana</i>		24	Atchison 1951	—	Trop. Africa
<i>bijuga</i>		24		MW	Pacific Is.
<b>SARACA</b> $x = 12$					
<i>declinata</i>		24	Atchison 1951	H	Sumatra
<i>indica</i>	Ashoka	24	" "	DHM	India, Burm., Cey.
<i>thaipingensis</i>		24	" "	—	Malaya
<b>TAMARINDUS</b> $x = 12$					
<i>indica</i>	Tamarind	24	Atchison 1951	FMW	Trop. Asia, Africa

# BAUHINIA $x = 14$

<i>acuminata</i>	28	Atchison 1951	HM	India, China, Mal.
<i>galpini</i>	28	" "	H	Trop. & S. Africa
<i>godefroyi</i>	28	" "	—	Cambodia
<i>hookeri</i>	28	" "	—	Australia
<i>macrostachya</i>	28	" "	—	Guiana
<i>mollicella</i>	28	" "	—	Venezuela
<i>purpurea</i>	28	" "	DH(V)	India, Bur., China
<i>rufescens</i>	28	" "	—	S. Africa
<i>saigonensis</i>	28	" "	—	Cochin China
<i>tomentosa</i> St. Thomas T.	28	" "	H	India
<i>variegata</i> Mountain Ebony	28	" "	DHT(V)	India, China
<i>monandra</i>	42	Poucques 1945	—	Burma

# COLVILLEA $x = 14$

<i>racemosa</i>	28	Atchison 1951	H	Madagascar
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# DELONIX (POINCIANA) $x = 14$

<i>regia</i> Flamboyante	24? 28	Poucques 1945 Jacob 1940, Atchison 1951	HShW	Madagascar
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# DIALIUM $x = 14$

<i>guineense</i>	28	Atchison 1951	W	W. Africa
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# DIMORPHANDRA $x = 14$

<i>mollis</i>	28	Covas 1949b	—	Brazil
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# GLEDITSIA $x = 14$

<i>amorphoides</i>	28	Atchison 1949a	—	Argentina
<i>aquatica</i>	28	" "	H	S: N. Amer.
<i>fera</i>	28	" 1951	—	China
<i>heterophylla</i>	28	" 1949a	H	"
<i>horrida</i>	28	" "	H	" Japan
<i>sinensis</i>	28	" "	H	"
<i>tricanthos</i> Honey Locust	28	" 1947a	AH(Su)	E: N. Amer.

# GYMNOCLADUS $x = 14$

<i>dioica</i> Kentucky Coffee T.	28	Atchison 1949a	HN	N. America
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# PARKINSONIA $x = 14$

<i>aculeata</i> Jerusalem Thorn,	28	Pantulu 1942	HT	Trop. America
Cina-Cina	28	Atchison 1951		

# PELTOPHORUM $x = 14$

<i>inermis</i> ( <i>ferrugineum</i> )	28	Atchison 1951	ShWH	Austr., Philip., Ceylon, Malaya
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## 147 MIMOSACEAE

# CALLIANDRA $x = 8$

<i>hematocephala</i>	16	Atchison 1951	H	Brazil
<i>inaequilatera</i>	16	" 1949a		Bolivia

# ENTADA $x = 8?$

<i>sudanica</i>	c. 16	Atchison 1951	FoMT	Trop. Africa
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**SCHRANKIA**  $x = 8$

<i>angustata</i>	16	Atchison 1949a		E: N. Amer.
<i>occidentalis</i>	24	Turner & B. 1953		America

**ENTEROLOBIUM**  $x = 13$

<i>contortisiliquum</i>	{ 26	Covas 1950c	—	Brazil
	26	Atchison 1951		
<i>cyclocarpum</i>	26	" "		Jamaica
<i>timbouva</i>	26	Tjio 1948	DW	Brazil

**LYSILOMA**  $x = 13$

<i>bahamensis</i>	26	Atchison 1951		Bahamas, Cuba
<i>divaricata</i>	26	" "		Mexico
<i>latisiliqua</i>	26	" "	W	Cuba
<i>tergemina</i>	26	" "		S. Mexico

**PARKIA**  $x = 13$

<i>biglandulosa</i>	26	Sampath & R. 1949	H	Malaya
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**PIPTADENIA**  $x = 13$

<i>macrocarpa</i>	26	Atchison 1951	H	Brazil, Bolivia
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**SIDEROCARPUS**  $x = 13$

<i>flexicaulis</i>	26	Atchison 1951		Texas, Mexico
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**ACACIA**  $x = 13$

(i) American Group

<i>aroma</i>	26	Atchison 1948	—	S. America
<i>bonariensis</i>	26	" "	—	Argentina
<i>cavenia</i>	26	" "	—	Chile
<i>chloriophylla</i>	26	" "	—	Bahamas
<i>curvifructa</i>	26	Covas 1950c	—	S. America
<i>furcata</i>	26	Covas & S. 1946	—	
<i>macracantha</i>	26	Atchison 1948	—	
<i>moniliformis</i>	26	" "	—	Argentina
<i>tenuifolia</i>	26	" "	—	W. I., S. Amer.
<i>tortuosa</i>	26	" "	—	S. Amer., Galap.
<i>villosa</i>	26	" "	—	Jamaica
	26	Covas & S. 1947	—	Argentina

(ii) Australian & Pacific Island Group

<i>alata</i>	26	Covas & S. 1946		W. Australia
<i>armata</i> Kangaroo Thorn	26	" "	Sb	Australia
<i>auriculaeformis</i>	26	Atchison 1948		
<i>baileyana</i> Cootamundra Wattle	26	" "	HW	N.S.W.
<i>calamifolia</i>	26	Chevalier 1945	—	Australia
<i>cultriformis</i>	26	" "	H	N.S.W.
<i>cyanophylla</i>	26	Atchison 1948	DW	W. Australia
<i>confusa</i>	26	" "	—	Philippines
<i>dealbata</i> Silver Wattle	26	" "	DHW	Australia
<i>decurrens</i> Black Wattle	26	" "	DW	"
<i>dermatophylla</i>	26	" "	—	"
<i>falcata</i>	26	Tjio 1948	W	"
<i>glaucoptera</i>	26	" "		
<i>graveolens</i>	26	" "		
<i>longifolia</i> Sydney Golden W.	26	Atchison 1948	H	
<i>melanoxylon</i> Austr. Blackwood	26		HW	
<i>mollissima</i> Green Wattle	26		DW	

# ACACIA (cont.)

<i>penninervis</i>	Mt. Hickory W.	26	Tjio 1948	H	Australia
<i>podalyrifolia</i>	Q'land Silver W.	26	Atchison 1948	H	"
<i>retinodes</i>		26	Tjio 1948	—	"
<i>richii</i>		26	Atchison 1948	—	Fuji Is.
<i>rubida</i>		26	Chevalier 1945	—	Australia
<i>saligna</i>		26	Atchison 1948	—	W. Australia
<i>verticillata</i>		26	Tjio 1948	—	Australia
<i>xylocarpa</i>		26	" "	—	N. Australia
<i>koa</i>		{ 52	Atchison 1948	W	Hawaii
		{ 52	Tjio 1948		

## (iii) Asiatic & African Group

<i>albida</i>	Winter Thorn	26	Atchison 1948	DFoMW	N. Africa
<i>catechu</i>	Catechu	26	" "	DMW	India, E. Indies
<i>detinens</i>		26	" "	—	S. Africa
<i>mellifera</i>		26	Khan 1951	T	India
<i>modesta</i>		26	" "	—	"
<i>senegal</i>	Gum Arabic	26	" "	FoTM	Trop. Africa
<i>suma</i>	Cutch	26	Atchison 1948	DMW	S.E. Asia
<i>sundra</i>		26	" "	—	"
<i>senegal</i> × <i>mellifera</i>		39	Khan 1951	—	<i>nat. hybrid</i>
<i>arabica</i>	Babul, Gum Arabic	52	Atchison 1948	FoDMW	Trop. Afr. & Asia
<i>eburnea</i>	Ivory Acacia	52	" "	W	India
<i>horrida</i>	All Thorn	52	" "	DW	Trop. & S. Africa
<i>laeta</i>		52	" "	—	Arabia, N. Africa
<i>nilotica</i>		52	" "	MWH	Trop. Afr. & Asia
<i>scorpioides</i>		52	" "	—	" " "
<i>seyal</i>		52	" "	FoM	Egypt
<i>spirocarpa</i>		52	" "	—	Trop. Africa
<i>xanthophloea</i>		52	" "	—	E. Trop Africa

## (iv) Cosmopolitan

<i>farnesiana</i>	Cassie	52	Atchison 1948	DHPW	Trop. & Sub-Trop.
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## ALBIZZIA x = 13

<i>gamblei</i>		26	Atchison 1951		India
<i>lebbekoides</i>		26	" "		Philippines
<i>lophantha</i>	Plum Acacia	26	Covas & S. 1946	FoSh	Australia
<i>neumannia</i>		26	" "		
<i>odoratissima</i>	Black Siris	26	Atchison 1951	HW	India, Bur., Cey.
<i>procera</i>	White Siris	26	Covas & S. 1946	W	Trop. Asia & Aus.
<i>julibrissin</i>		{ 26	Sakai 1951	(B)HSh	Sub-Tr. Asia, Afr.
		{ 52	R. Yamazaki 1936		
<i>polyphylla</i>		104	Covas & S. 1946	—	Madagascar

## ARTHROSAMANEA x = 13

<i>polycephala</i>		26	Burkart 1949b	—	Argentina
<i>polyantha</i>		c. 52			

## PITHECELLOBIUM (PITHECOLOBIUM x = 13

<i>brevifolium</i>		26	Atchison 1951	—	Mexico
<i>dulce</i>	Madras Thorn	26	Sampath & R. 1949	DFoH	Trop. America
<i>guadelupensis</i>		26	Atchison 1951	—	W. Indies
<i>saman</i>	Rain Tree	{ 26	" "	FoSh	Trop. America
		{ 26	Simmonds 1954		

# PITHECELLOBIUM. (cont.)

<i>scalare</i>	{ 26	Covas 1950c	—	Argentina
<i>polycephalum</i>	{ 26	Atchison 1951	—	Trop. America
	52			

# LEUCAENA x= 13

<i>glauca</i>	{ 104	Tjio 1948	BDFoMaVW	Trop. America
	{ 104	Sampath & R. 1949		

# MIMOSA x= 13, 14

<i>bimucronata</i>	26	Covas & S. 1947		Brazil
<i>invisa</i>	{ 24	Frahm-Leliveld 1953		
	{ 26	Tjio 1948		
<i>biuncifera</i>	52		—	Mexico
<i>pudica</i>	Sensitive Plant	52	FoHM	Brazil
<i>ephedroides</i>	28	Covas & S. 1946	—	Chile
<i>hamata</i>	40?	Dnyansagar 1951	—	India

# PROSOPIS x= 13?, 14

<i>juliflora</i>	Mesquite	26	Ramanathan 1950		
		52	Sampath & R. 1949	AFoRe	Trop. America
		56	Atchison 1951		
<i>alba</i>		28	Covas & S. 1947	FW	Argentina
<i>alpataco</i>		28	" "		Chile
<i>argentina</i>		28	" 1946		Argentina
<i>campestris</i>		28	" 1947		"
<i>chilensis</i>	Algarrabo	28		Re	S. America
<i>ferox</i>		28			Argentina
<i>ruizleali</i>		28			
<i>ruscifolia</i>		28	Covas 1950c	FoM	
<i>strombulifera</i>		28	Schnack & C. 1947		S. America
<i>striata</i>	28, 56, c. 112		Castronovo 1945		Pagatonia

# DESMANTHUS\* x= 14

<i>acuminatus</i> & 4 spp.	28	Turner & B. 1953		S: U.S.A.
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# NEPTUNIA x= (9) 18

<i>triquetra</i>	36	Dnyansagar 1952	—	India
<i>plena</i>	c. 72	Frahm-Leliveld 1953	H	N. & S. America, Trop. As., Aust.

# DICHROSTACHYS x=1 4

<i>glomerata</i>	56	Atchison 1951	FoHMTToW	Trop. Africa
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## 148 PAPILIONACEAE

### Order of the Tribes with their Basic Numbers

I	Vicieae: 5, 6, 7, 8	VI	Podalyrieae: 7, 8, 9
II	Hedysareae: 5, 6, 7, 8, 9, 11	VII	Genisteae: 7, 8, 9, 10, 11, 12
III	Loteae: 6, 7, 8	VIII	Sophoreae: 7, 8, 9, 10, 13
IV	Trifolieae: 6, 7, 8, 9	IX	Phaseoleae: 8, 10, 11, 12
V	Galegae: 6, 7, 8, 9, 10, 11	X	Dalbergiae: 8, 10, 11, 12, 13

TRIBE I: VICIEAE

VICIA  $x = 5, 6, 7$

$x = 5$  or  $6$

<i>amphicarpa</i>		{ 10 Sweschnikova '30, '40 —	Eur., W. As.
		12 Coutinho 1940 —	N. Africa
<i>lathyroides</i>	Spring Vetch	{ 10 Sweschnikova 1927a —	Eur., Asia Minor
		12 Heitz 1931a —	N. Africa
<i>macrocarpa</i>		{ 10 " " —	S. Europe
		12 Coutinho 1940 —	
$x = 6$			
<i>ambigua</i>		12 Coutinho 1945 —	Eur., S.W. Asia, N. Africa
<i>angustifolia</i>	Narrowleaf Vetch	12 Sweschnikova 1927a Fo	" " "
<i>ferruginea</i>		12 Coutinho 1945 —	? " "
<i>grandiflora</i>		12 " " —	S. Eur., S.W. Asia
<i>hybrida</i>		12 Heitz 1931b —	Eur., Med.
<i>hyrcanica</i>		12 " " —	Caucasus
<i>michauxii</i>		12 Coutinho 1945 —	Syria, Persia
<i>orobus</i>	Upright V.	12 Heitz 1931b —	Europe
<i>annonica</i>	Hungarian V.	12 " " Fo	S. Eur., Asia
<i>peregrina</i>		12 " " —	Medit., India
<i>pisiformis</i>	Pea Vetch	12 " " V	Europe
<i>amoena</i>		{ 12 Moriya & K. 1949b —	Siberia
		24 Sweschnikova 1927a —	
		12 Heitz 1931b —	
<i>unijuga</i>	Pair Vetch	{ 24 Sakamura, I. 1916 —	E. Asia
		36 Kawakami 1930 —	
<i>tenuifolia</i>	Marrachero	{ 24 Heitz 1931b FoV	Eur., S.W. & N. Asia
		24 Ryka 1954 —	

$x = 6$  or  $7$

<i>calcarata</i>		{ 12 Senn 1938 —	Medit., Persia
		14 Heitz 1931b —	
<i>faba</i>	Broad, Horse or Field Bean	{ 12 McLeish 1953 FoV	Medit., <i>cult</i>
		(24) Rybin 1939 —	Eur. strains
		12 Hirayoshi & M. 1952 —	Jap. strains
		14 " " " —	
<i>sativa</i>	Common V. or Tare	{ 12 Sweschnikova 1940 GFo	Eur., N. Africa, W. Asia
		12 Sakai 1951 —	
		12, 14 Moriya & K. 1949b —	
		12, 14 Coutinho 1940, '45 —	
<i>cracca</i>	Cow Vetch	{ 12, 14, 28 Sweschnikova 1927b FoG	Eur., W. Asia, N. America
		14 Moriya & K. 1949b —	S. Poland
		14, 28 Ryka 1954 —	

$x = 7$

<i>articulata</i> ( <i>monantha</i> )		14 Heitz 1931b MaFo	Medit.
<i>atropurpurea</i>	Purple Vetch	14 " " FoMa	Algeria
<i>aurantia</i>		14 " " —	Asia Minor
<i>bithynica</i>		14 " " —	Medit.
<i>calcarata</i>		14 " " —	Medit., Persia
<i>cassubica</i>		14 Wulff 1939b —	Europe
<i>dasycarpa</i>	Woolly Pod V.	14 Sweschnikova 1927a Fo	"
<i>disperma</i>		14 Heitz 1931b —	S. France
<i>dumetorum</i>	German Vetch	14 " " —	Europe, Siberia
<i>erviformis</i>		14 " " —	W. Medit.

# **VICIA (cont.)**

<i>ervilia</i>	Bitter Vetch	14	Heitz 1931b	FoV	Eur., N. Africa Asia Minor
<i>gracilis</i>		14	Sweschnikova 1927a	—	Eur., Syria
<i>grandiflora</i>		14	Heitz 1931b	—	S. Eur., A. Minor
<i>hirsuta</i>	Hairy Tare	14	" "	FoV	Eur., N. Afr., Asia
<i>lutea</i>	Yellow Vetch	14	" "	—	Med., Pers., A.M.
<i>monantha</i>	Bard Vetch	14	" "	FoG	Medit.
<i>musquinez</i>		14	" "	—	Europe
<i>narbonensis</i>	French Vetch	14	" "	FoV	Med., W. Asia
<i>picta</i>		14	Sweschnikova 1927a	—	Armenia
<i>pseudo-orobus</i>		14	Heitz 1931b	—	N. China
<i>pseudo-cracca</i>		14	Sweschnikova 1927a	—	Italy
<i>pyrenaica</i>	Pyrenees V.	14	Heitz 1931b	—	Pyrenees
<i>sepium</i>	Bush Vetch	14	" "	V	Eur., N. As., Him.
<i>serratifolia</i>		14	Senjaninova 1932	—	Med., S.W. Asia
<i>sicula</i>		14	Heitz 1931	—	Sicily
<i>sylvatica</i>	Wood Vetch	14	Sweschnikova 1927a	—	Europe
<i>tetrasperma</i>	Sparrow V.	14	" "	—	Eur., Medit.
<i>varia</i>		14	Senn 1938	—	Eur., W. Asia, N. Africa
<i>villosa</i>	Russian V.	14	" "	VFo	Russia
<i>alpestris</i>		28	Heitz 1931b	—	Cauc., A. Minor

## **LENS $x = 7$**

<i>esculenta</i>	Lentil	14	Heitz, T. 1927	G	<i>cult</i>
<i>v. microsperma</i>		14	Miranda 1931, EKJ		
<i>v. macrosperma</i>		14	" " "		

## **PISUM $x = 7$**

<i>abyssinicum</i>		14	Fedotov 1935	VG	Abyssinia
<i>elatus</i>		14	" "	VG	Med., S.W. Asia
<i>fulvum</i>		14	" "	—	A. Minor, Syria
<i>sativum</i>	Garden Pea	14	Sansome 1933	FoVG	<i>cult</i> , S.W. Asia

## **LATHYRUS\* $x = 7$**

<i>angulatus</i>		14	Simonet 1932c	—	Europe
<i>annuus</i>		14	" "	—	Medit., S.W. Asia
<i>aphaca</i>	Yellow Vetchling	14	" "	G	Medit., W. Asia
<i>articulatus</i>		14	Senn 1938	—	W. Medit.
<i>cicera</i>	Lesser Chick P.	14	" "	G	Eur., S.W. Asia
<i>cirrhusus</i>		14	" "	—	Pyrenees
<i>clymenum</i>		14	" "	—	Medit.
<i>grandiflorus</i>	Everlasting P.	14	" "	H	Italy, Greece
<i>ensifolius</i>		14	" "	—	Europe
<i>heterophyllus</i>		14	" "	—	"
<i>latifolius</i>	Perennial P.	14	" "	H	"
<i>magellanicus</i>	Cape Horn P.	14	Melderis & V. 1931	G	Magellan
<i>montanus</i>	Heath P.	14	Scheerer 1940	—	Europe
<i>maritimus</i>	Sea Pea	14	Kawakami 1930	G	Eur., N. Asia
<i>(japonicus)</i>		14	Sakai 1951		
<i>niger</i>	Black Vetchling	14	Corti 1931b	—	Europe
<i>nissolia</i>	Grass Vetchling	14	Simonet 1932c	—	Eur., S.W. Asia
<i>numidicus</i>		14	" "	—	Algeria
<i>ochrus</i>		14	" "	FORG	Medit.
<i>pannonicus</i>		14	Melderis & V. 1931	—	S. Eur., Asia M.
<i>pisiformis</i>		14	Marks 1952	—	Europe
<i>pubescens</i>		14	Simonet 1932c	—	Chile

# LATHYRUS (cont.)

<i>roseus</i>		14	Marks 1952	—	Europe
<i>rotundifolius</i>		14	Simonet 1932c	—	E. Eur., S.W. Asia
<i>sativus</i>	Grass Pea	14	Bhattacharjee 1955	FoG	N. Afr., W. Asia
<i>sessilifolius</i>	& 10 Spp.	14	Senn 1938	—	C: S. America
<i>sylvestris</i>	Flat Pea	14	Simonet 1932c	—	Europe
<i>sphaericus</i>		14	" "	—	S. Europe
<i>tingitanus</i>	Tangier P.	14	" "	Fo	W. Medit.
<i>tuberosus</i>	Earthnut P.	14	Fisk 1931	R	Europe, Asia
<i>vernus</i>	Spring Bitter V.	14	Melderis & V. 1931	—	Europe
<i>hirsutus</i>	Winter Vetch	14 (28)	Senn 1938 Marks 1950	Fo	Eur., S.W. Asia
<i>odoratus</i>	Sweet Pea	14 (28)	Simonet 1932c Fabergé 1935	HP	Sicily, <i>cult</i>
<i>pratensis</i>		14 28 14, 28	Melderis & V. 1931 Marks 1950 Larsen 1953	Fo	Eur., Asia, N. Afr. (England)
<i>palustris</i>	Marsh Pea	14 42	Senn 1938 Scheerer 1940	—	N. Hemis.
<i>venosus</i>		28	Senn 1938	Fo	N. America

# CICER $x=7, 8$

<i>soongaricum</i>		14	Iyengar 1939	G	N.W. Him.
<i>arietinum</i>	Chick Pea	16 16. (32)	Thomas & R. 1946 Milovidov 1932	GFoV	India, W. Asia
<i>as kabulicum</i>	Kabuli Gram	16	Iyengar 1936		
<i>pinnatifidum</i>		16	Tschechow, T. 1938	G	Mesop., Asia M.

## TRIBE II: HEDYSAREAE

# ADESMIA $x=5$

sp. aff. <i>trijuga</i>		10	Covas & S. 1946	—	Chile
<i>coronilloides</i>		20	" "	—	"
<i>fernandezii</i>		20	" "	—	"
<i>capricornu</i>		20	Covas 1949b	—	"
<i>trijuga</i>		20	" "	—	"
<i>uspallatensis</i>		20	" "	H	"
<i>bicolor</i>		20	Castronovo 1945	—	Argentina
sp. aff. <i>glanduligera</i>		20, 40	Covas 1949b	—	Chile
<i>remyana</i>		20	Krapovickas & K. '51	—	Argentina
<i>subterranea</i>		20	" "	—	"

# CORONILLA $x=6$

<i>glauca</i> var. <i>pygmaea</i>		12	La Cour 1952	H	S. Europe
<i>glauca</i>		24	Atchison 1949a	—	
<i>varia</i>	Crown Vetch	24	Romanenko 1937	FoH	Europe

# HIPPOCREPIS $x=7$

<i>multisiliquosa</i>		14	Lorenzo-Andreu & G. 1950	H	Medit.
<i>comosa</i>	Horseshoe V.	28	Maude 1940	FoH	"

# SCORPIURUS $x=7$

<i>vermiculatus</i>		14	Senn 1938	H	Medit.
<i>sulcatus</i>		{ 14, 28 28	" " Coutinho & R. 1945	H	"

# SCORPIURUS (cont.)

<i>muricatus</i>	28	Coutinho & R. 1945	—	Medit.
<i>subvillosus</i>	28	" "	—	"

# HEDYSARUM $x = 7, 8$

<i>elongatum</i>	Sweet Vetch	14	Sakai 1934	Fo	Russia
<i>obscurum</i>		14	Reese 1952a	H	Europe, N. Asia
<i>coronarum</i>	Sulla S.V.	16	Lewitsky, Г. 1937	FoH	S. Europe
<i>hedysaroides</i>		14	Favarger 1953	—	Arctic, Alps, Altai

# ORNITHOPUS $x = 7$

<i>compressus</i>		14	Griesinger & K. 1939	—	Europe
<i>isthmocarpus</i>		14	" "	—	W. Medit.
<i>macrorhynchus</i>		14	" "	—	Europe
<i>perpusillus</i>	Birdsfoot	{ 14	Milovidov 1941	Fo	"
		{ 14	Maude 1940		
		{ 14	Romanenko 1937		
<i>sativus</i>	Serradella	{ 14	Griesinger & K. 1939	Fo	E. Europe
		{ 16?	Kawakami 1930		
		(56)	Klinkowski & G. 1939		

# ONOBRYCHIS $x = 7, 8$

<i>arenaria</i>		14	Favarger 1953	—	Alps
<i>caput-galli</i>		14	Senn 1938	Fo	Medit.
<i>crista-galli</i>		{ 14	Corti 1931a	Fo	S.E. Medit.
		{ 16	Senn 1938		
<i>pulchella</i>		16	" "	Fo	Manchuria
<i>viciifolia (sativa)</i>	Sainfoin	{ 14	Romanenko 1937	Fo	<i>cult</i>
		{ 28	Maude 1939		
<i>montana</i>		28	Favarger 1953	—	S. Eur. Mtns.

# LESPEDEZA $x = 9, 10, 11$

<i>homoloba</i>		18	Kawakami 1930	Fo	Japan
<i>sericea</i>		18	Cooper 1936	Fo	Himalaya
<i>sieboldii</i>		18	Kawakami 1930	FoH	Japan, Him.
<i>frutescens</i>		18, 20	Young 1940	—	N. America
<i>pilosa</i>		{ 18	Sakai 1951	—	Japan
		{ 20	Pierce 1939		
<i>variegata</i>		{ 18	Cooper 1936	—	Himal., N. Asia
		{ 20	Pierce 1939		
<i>bicolor</i>		{ 18	Kawakami 1930	FoH	Japan, China
		{ 22	Pierce 1939		
<i>cyrtobotrya</i>		{ 18	Kawakami 1930	Fo	Japan, Korea
		{ 22	Pierce 1939		
<i>daurica</i>		{ 36	Cooper 1936	—	Siberia
		{ c. 44	Pierce 1939		
<i>capitata</i>		20	Young 1940	—	N. America
<i>hirta (villosa)</i>		20	" "	—	"
<i>inschanica</i>		20	" "	—	China?
<i>procumbens (repens)</i>	Bush C.	20	" "	—	N. America
<i>repens</i>		20	" "	—	"
<i>simulata</i>		20	" "	—	"
<i>stipulacea (striata)</i>		20	Hanson 1953	—	Japan
<i>stuevei</i>		20	Young 1940	—	N. America

# **LESPEDeza (cont.)**

<i>tomentosa</i> (villosa)	20	Cooper 1936	—	N. America
<i>virginica</i> (sessiliflora)	20	Young 1940	—	"
<i>floribunda</i>	22	Pierce 1939	—	China
<i>japonica</i>	22	" "	—	Japan
<i>striata</i> Japan C	22	Young 1940	FoMa	"
<i>thunbergii</i>	22	" "	—	"
<i>virgata</i>	22	Pierce 1939	—	"

# **STYLOSANTHES $x = 10$**

<i>guianensis</i>	20	Kishore 1951	—	Guiana
<i>riparia</i>	20	Atchison 1949a	—	E: N. America

# **ZORNIA $x = 10$**

<i>bracteata</i>	20	Atchison 1949a	—	S.E: N. Amer.
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# **ARACHIS $x = 10$**

<i>diogeni</i>	20	Mendes 1947	—	Brazil
<i>marginata</i>	20	" "	—	"
<i>villosa</i>	20	Krapovickas & R. '51	—	"
<i>villosulcarpa</i>	20	Mendes 1947	—	"
<i>prostrata</i>	{ 20	" "	O	"
<i>hypogaea</i> Groundnut	40	Husted 1933	—	"
<i>nambiquarae</i>	40	Frahm-Leliveld 1953	FoNO	" <i>cult</i>
<i>rasteiro</i>	40	Husted 1933	O	"
<i>pusilla</i>	40 + 0-1B	" "	O	"
	40 (80)	Krapovickas & R. '51	—	"

# **DESMODIUM \* $x = 11$**

<i>bracteosum</i> & 9 spp.	22	Young 1940	Fo	N. America
<i>discolor</i>	22	" "	Fo	Brazil
<i>glabellum</i>	22	" "	Fo	N. America
<i>grandiflorum</i>	22	" "	Fo	India
<i>gyrans</i>	22	" "	Fo	Trop. Asia
<i>gyroides</i>	22	" "	MMa	S.E. Asia
<i>incanum</i>	22	" "	Fo	W. Indies
<i>strictum</i>	22	" "	Fo	Japan
<i>tortuosum</i> Beggarweed	22	" "	FoH	N. Amer., W. Ind
<i>triquetrum</i>	22	" "	MMa	Trop. Asia
<i>leiocarpum</i>	22	Frahm-Leliveld 1953	—	Argentina

# **KUMMEROWIA $x = 11$**

<i>striata</i>	22	Sakai 1951	—	Japan
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# **ORMOCARPUM $x = 12$**

<i>trichocarpum</i>	24	Atchison 1951	—	E. Africa
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# **AESCHYNOMENE $x = 20$**

<i>indica</i> Pith Plant	40	Kawakami 1930	T	Tropics
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## **TRIBE III: LOTEAE**

# **SECURIGERA $x = 6$**

<i>coronilla</i> Hatchet Vetch	12	Tschechow & K. '32a	H	S. Europe
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# **ANTHYLLIS $x = 6, 7, 8$**

<i>alpestris</i>	12	Tschechow & K. '32a	—	C. Europe
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# ANTHYLLIS (cont.)

<i>maritima</i>		12	Tschechow & K. '32a	—	N. Europe
<i>vulneraria</i>	Kidney Vetch	12	Corti 1931a	FoH	Eur., W. As., Aby.
<i>barba jovis</i>		14	Tschechow & K. '32a	FoH	Medit.
<i>gerardii</i>		16	" "	Fo	W. Medit.

# LOTUS $x = 6, 7$

<i>angustissimus</i>		12, 24	Tschechow & K. '32a	Fo	Eur., N. Asia
<i>corniculatus</i>	Bird's Foot T.	24	Milovidov 1941	FoH	Temp. Eur. & As.
<i>v. tenuifolius</i>		12	Guinochet 1945		
<i>v. arvensis</i>		24	" "		
<i>v. hirsutus</i>		24	" "		
<i>uliginosus</i>		{ 12	Dawson 1941	Fo	Eur., Medit.
		24	Milovidov 1941		
<i>hispidus</i>	Hairy Deer V.	24	Tschechow & K. '32a	Fo	Eur., N. Africa
<i>cytisoides</i>		14	" " "	Fo	Medit.
<i>edulis</i>		14	Senn 1938	Fo	"
<i>ornithopodioides</i>		14	Tschechow & K. '32a	Fo	"
<i>creticus</i>		28	" " "	Fo	"

# TETRAGONOLOBUS (LOTUS) $x = 7$

<i>maritimus</i> (L. <i>siliquosus</i> )		14	Tarnavski 1938	—	Med., C. Europe
<i>purpureus</i>	Winged Pea	14	Tschechow & K. '32a	FoHV	Medit.

# DORYCNium $x = 7$

<i>herbaceum</i>		14	Tschechow & K. '32a	H	S. Eur., Asia M.
<i>hirsutum</i>		14	" " "	H	Medit.
<i>rectum</i>		14	" " "	H	"
<i>suffruticosum</i>		14	" " "	H	C. & S. Europe

# HYMENOCARPUS $x = 8$

<i>circinnatus</i>		16	Tschechow & K. '32a	—	Med.—Persia
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## TRIBE IV: TRIFOLIEAE

# TRIFOLIUM $x = 6, 7, 8, 9$

$x = 6, 8$

<i>subterraneum</i>	Subterranean C.	{ 12	Brock 1953	Fo	Israel
		16	" "	Fo	Medit.

$x = 7$

<i>angustifolium</i>	Fineleaf C.	14	Karpechenko 1925	Fo	Eur., N. Africa
<i>arvense</i>	Rabbit Foot C.	14	" "	Fo	O W Temp.
<i>aureum</i>	Hop Clover	14	Wulff 1939b	Fo	Eur., Med.
( <i>agrarium</i> )					
<i>badium</i>		14	Bleier 1925	Fo	"
<i>campestre</i>	Mignonette C.	14	Karpechenko 1925	Fo	"
( <i>procumbens</i> )					
<i>filiforme</i>	Slender C.	14	" "	Fo	Eur., Cauc.
( <i>micranthum</i> )					
<i>incarnatum</i>	Crimson C.	14	" "	Fo	S.W. Eur., Alg.
<i>pratense</i>	Red Clover	14 (28)	Levan 1942a	Fo	Eur., W. As., Alg
<i>spadiceum</i>		14	Karpechenko 1925	Fo	C. Eur., W. Asia
<i>squarrosum</i>		14	" "	Fo	Med., W. Asia
<i>striatum</i>	Knotted C.	14	Wulff 1939a	Fo	S. Eur., A. Minor
<i>dubium</i> (minus)	Suckling C.	{ 14	Karpechenko 1925		
		28	Bleier 1925	Fo	Europe
		16	Noda 1946		

# TRIFOLIUM (cont.)

x = 8

<i>albopurpureum</i>		16	Wexelsen 1928	—	W: N. Amer.
<i>alexandrinum</i>	Beerseem	16	" "	Fo	N. Africa
<i>alpinum</i>		16	Favarger 1953	—	S.W. Eur. Mtns.
<i>alpestre</i>	Purple Globe C.	16	Karpechenko 1925	Fo	S. Eur., N. Asia
<i>fragiferum</i>	Strawberry C.	16	" "	Fo	Med., Abyssinia
<i>fucatum</i>	Puff Clover	16	Wexelsen 1928	Fo	W. : N. America
<i>glomeratum</i>	Cluster C.	16	" "	Fo	Med., W. Eur.
<i>hybridum</i>	Alsike C.	16	Kawakami 1930	Fo	S. Europe
<i>lappaceum</i>	Burdock C.	16	Karpechenko 1925	Fo	Med., S.W. Asia
<i>maritimum</i>		16	" "	Fo	" "
<i>microcephalum</i>		16	Wexelsen 1928	Fo	W: N. Amer.
<i>montanum</i>	Mountain C.	16	Karpechenko 1925	Fo	S. Eur., N. Asia
<i>obtusiflorum</i>	Soursalt C.	16	Wexelsen 1928	Fo	W: N. Amer.
<i>ochroleucon</i>		16	Bleier 1925	Fo	Eur., A. Minor
<i>reflexum</i>	Buffalo C.	16	Wexelsen 1928	Fo	N. America
<i>resupinatum</i>	Persian C.	16	Karpechenko 1925	Fo	Afghanistan
<i>rubens</i>		16	" "	Fo	C. & S. Europe
<i>scabrum</i>	Rough C.	16	" "	Fo	Med., W. Europe
<i>variegatum</i>	White Tip C.	16	Wexelsen 1928	Fo	W: N. Amer.
<i>thalii</i>		16	Bleier 1925	Fo	S., C. & W. Eur.
<i>tumens</i>		16	Karpechenko 1925	Fo	Cauc., Pers., Afgh.
<i>dichotomum</i>		32	Wexelsen 1928	Fo	N. America
<i>repens</i>	White or Dutch C.	32	Atwood & H. 1940	Fo	Temp. O.W.
		48	Moriya & K. 1949b		
		(64)	Levan 1942a		
<i>lupinaster</i>		48	Karpechenko 1925	Fo	Japan, Korea
<i>wormskoeldii</i>	Sierra Clover	c. 48	Wexelsen 1928	Fo	W: N. Amer.
<i>medium</i>	Zigzag Clover	c. 84	Levan, L. & L. 1942	Fo	Eur., N. Amer.
		c. 98	Bleier 1925		
		c. 126	L. & L. 1944b		
		c. 130	Wexelsen 1928		
<i>pannonicum</i>	Hungarian C.	c. 130	Noda 1946	Fo	Eur., S.W. Asia
		c. 180	Tschechow 1930		

## MEDICAGO x = 7, 8

<i>hispida</i>	Tooth M., Bur C.	14	Fryer 1930	FoMa	S. Europe
<i>as denticulata</i>		16	Ghimpu 1930		
<i>rigidula</i>	Tifton Bur C.	14	Fryer 1930	—	Europe
		16	Ghimpu 1930		
<i>arabica (maculata)</i>	Spotted Medick	16	" 1928	FoMa	W. & S. Europe
<i>carstiensis</i>		16	Fryer 1930	—	Europe
<i>ciliaris</i>		16	Ghimpu 1929b	Fo	Medit.
<i>disciformis</i>		16	" 1928	—	S. Eur., A. Minor
<i>echinus</i>		16	" "	—	Medit.
<i>gerardi</i>		16	" 1929b	—	Europe
<i>helix</i>		16	" "	—	Medit.
<i>intertexta</i>		16	Fryer 1930	—	S. Europe
<i>laciniata</i>		16	" "	—	Medit.
<i>littoralis</i>		16	" "	—	"
<i>marina</i>		16	Ghimpu 1929b	—	"
<i>minima</i>	Woolly Bur M.	16	" "	Fo	E. Europe
<i>murex</i>		16	Fryer 1930	—	Europe
<i>muricata</i>		16	" "	—	"
<i>nigra</i>		16	Ghimpu 1929b	—	N. Temp.
<i>oliviformis (turbinata)</i>		16	Tschechow 1933	Fo	Medit.

# MEDICAGO (cont.)

<i>orbicularis</i>	Button C.	16	Fryer 1930	Fo	Medit., Abys.
<i>pentacycla</i>		16	Ghimpu 1929b	—	N. Temp.
<i>platycarpa</i>		16	Fryer 1930	Fo	Turkestan
<i>ruthenica</i>		16	" "	Fo	Siberia
<i>soleirolii</i>		16	" "	Fo	Italy
<i>sphaerocarpa</i>		16	Ghimpu 1928	Fo	Medit.
<i>tenoreana</i>		16	" "	Fo	Italy
<i>truncatula</i> ( <i>tribuloides</i> )		16	" "	Fo	Europe
<i>tuberculata</i>		16	Tschechow 1933	Fo	Medit.
<i>turbinata</i>		16	" "	Fo	"

<i>lupulina</i>	Black M.	16, 32	" "	FoMa	N. Temp.
<i>falcata</i>	Yellow Lucerne	16, 32	Ledingham 1940	Fo	"
<i>arborea</i>	Tree Alfalfa	32	Ghimpu 1929b	Fo	Medit.
<i>hemicycla</i>		32	D. C. Cooper 1935b	Fo	Transcauc.
<i>media</i>	Sand Lucerne	32	Fryer 1930	Fo	Temp.
<i>ovalis</i>		32	Tschechow 1933	Fo	Spain
<i>rugosa</i>		32	Fryer 1930	Fo	Europe
<i>sativa</i>	Lucerne, Alfalfa	16, 32, 64	Bolton & G. 1950	FoMa	Persia, <i>cult</i>
			Fryer 1930		
			Tomé 1947		
<i>scutellata</i>	Snail Clover	32	Fryer 1930	Fo	Medit.

# TRIGONELLA $x = 8, 9, 11, 14$

<i>balansae</i>		16	Tschechow 1933	Fo	Gl., Asia Minor
<i>besseriana</i>		16	Gardé 1948	—	E. Eur., A. Minor
<i>brachycarpa</i>		16	Tschechow 1933	—	Asia
<i>calliceras</i>		16	" "	—	Cauc.
<i>coerulea</i>	Curd Herb	16	Fryer 1930	SpV	W. Eur., Cauc.
<i>cretica</i>		16	Tschechow 1933	—	Medit.
<i>corniculata</i>	Piring Sak	16	" "	V	S.W. Asia
<i>foenum-graecum</i>	Fenugreek	16	Fryer 1930	GSpV	"
<i>gladiata</i>		16	Coutinho & S. 1943	—	Medit.
<i>glomerata</i>		16	Tschechow 1933	—	S.W. Asia
<i>lipskyi</i>		16	Gardé 1948	—	Bokhara
<i>monspeliaca</i>		16	" "	—	Medit.
<i>radiata</i>		16	Tschechow 1933	V	Asia M., Persia
<i>striata</i>		16	Gardé 1948	—	Asia. M., Turkest.

<i>hamosa</i>		16, 44!	" "	—	Egypt
<i>ornithopodioides</i>		18	Rutland 1941	—	Europe
<i>polycerata</i>		28, 30, 32	Gardé 1948	Fo	Medit., S.W. Asia
<i>geminiflora</i>		44	" "	—	Asia Minor, Persia
<i>grandiflora</i>		44	" "	—	Turkestan

# MELILOTUS $x = 8$

<i>aiba</i>	Bokhara C.	16, 24 (32)	Atwood 1936	Fo	Eur., Asia
<i>altissima</i>		16	Scheerer 1939	Fo	" "
<i>dentata</i>		16	Tschechow 1933	Fo	Eur., E. Asia
<i>indica</i>	Sour C.	16	" "	FoMa	Medit.—India
<i>italica</i>		16	Clarke 1932	FoMa	Medit.
<i>messanensis</i>		16	" "	Fo	"
<i>neapolitana</i>		16	Tschechow 1933	Fo	Medit., Asia M.
<i>officinalis</i>	Sweet C.	16	" "	Fo	Eur., N. Asia
<i>segetalis</i>		16	Clarke 1932	Fo	Medit.
<i>speciosa</i>		16	" 1934	—	Algeria

# MELILOTUS (cont.)

<i>suaveolens</i>	16	Tschechow 1933	Fo	N. China
<i>sulcata</i>	16	" "	Fo	Medit.
<i>taurica</i>	16	" "	Fo	"
<i>wolgica</i>	16	" "	Fo	Russia

# PAROCHETUS $x = 8$

<i>communis</i>	Shamrock Pea	16	Clarke 1934	H	Trop. Asia
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# ONONIS $x = (8), 15, 16$

<i>tridentata</i>		30	Lorenzo-Andreu '51	—	Spain
<i>spinosa</i>	Rest Harrow	{ 32	Tschechow 1933	V	Eur., Medit.
		60	Senn 1938		
<i>alopecuroides</i>		{ 30	" "	—	Medit.
		32	Tschechow 1933		
<i>biflora</i>		32	" "	—	Algeria
<i>fruticosa</i>		32	" "	—	Europe
<i>natrix</i>		32	" "	H	S. Europe
<i>ornithopodioides</i>		32	" "	—	Medit.
<i>rotundifolia</i>		32	" "	—	C. Europe
<i>viscosa</i>		32	" "	Fo	S. Europe
<i>repens (arvensis)</i>		32	Reese 1952a	—	Eur., Siberia
<i>reclinata</i>		{ 60	Senn 1938	Fo	Medit.,
		64	Tschechow 1933		Abyssinia

# TRIBE V: GALEGEAE

# SESBANIA $x = 6$

<i>aegyptiaca</i>	Sesban	{ 12	Rao 1946	HMMa	Egypt
		12	Haque 1946		
<i>macrocarpa</i>		12	Atchison 1949a	—	S.E. N. Amer.
<i>punctata</i>		12	Frahm-Leliveld 1953	Ma	O.W. Tropics
<i>punicea</i>		12	Covas & S. 1947	—	Argentina
<i>speciosa</i>		12	Simmonds 1954	—	E. Trop. Africa
<i>tetraptera</i>		12	Senn 1938	Ma	Trop. Africa
<i>aculeata</i>	Dhencha	{ 12	Rao 1946	FoMaT	Tropics
( <i>bispinosa</i> )		24	Haque 1946		
<i>grandiflora</i>	Agathi	{ 24	Jacob 1941	DHM	Trop. Asia
Vegetable	Humming Bird	24	Tjio 1948	MaShV	
<i>sericea</i>		24	Frahm-Leliveld 1953	Ma	W. Indies

# INDIGOFERA $x = 6, 7, 8$

<i>anil</i>	Indigo	12	Senn 1938	D	S. Trop. Asia
<i>parviflora</i>		14	Hagerup 1932	Ma	Tropics
<i>arrecta</i>	" Java I. "	16	Frahm-Leliveld 1953	DMa	Trop. Africa
<i>aspera</i>		16	Hagerup 1932	—	"
<i>diphylla</i>		16	" "	—	"
<i>dosua</i>		16	Sampath & A. 1949	—	Himal.
<i>hirsuta</i>		16	Frahm-Leliveld 1953	(D)Ma	Tropics
<i>kirilowi</i>		16	Kawakami 1930	Ma	China, Korea
<i>pseudotinctoria</i>		16	" "	DMa	Japan
<i>sumatrana</i>		16	Frahm-Leliveld 1953	—	Tropics
<i>tinctoria</i>	Ceylon I.	16	Ramanathan 1950	D	India, Ceylon
<i>viscosa</i>		16	Hagerup 1932	Ma	Trop. Africa, Ind
<i>endecaphylla</i>		{ 32	Frahm-Leliveld 1953		
		32	Simmonds 1954	FoMa	O.W. Tropics
		36	Kishore 1951		
<i>sessiliflora</i>		32	Hagerup 1932	—	Trop. Africa

# INDIGOFERA (cont.)

<i>suffruticosa</i>	Am. Indigo	32	Kawakami 1930	DMa	S. America
<i>teysmannii</i>		32	Atchison 1951	—	Trop. E. Asia
<i>decora</i>		48	Tschechow 1930	—	China
<i>gerardiana</i>		48	Kreuter 1930	D	Himalayas

# CYAMOPSIS $x = 7$

<i>psoraloides</i>	Cluster Bean	14	Frahm-Lehveld 1953	FoV	India
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# DALEA $x = 7$

<i>alopecuroides</i>		14	Atchison 1949a		E: N. Amer.
<i>occidentalis</i>		14	„ „		C. America

# GUELLENSTAEDTIA $x = 7$

<i>monophylla</i>		14	Tschechow 1935		Sib., Altai
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# BISERRULA $x = 8$

<i>pelecinus</i>		16	Kreuter 1930		Med., Canaries
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# CALOPHACA $x = 8$

<i>wolgarica</i>		16	Kreuter 1930	H	S. Russia, Turkest.
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# CLIANTHUS $x = 8$

<i>puniceus</i>	Parrot's Bill	16	Tschechow 1935	H	New Zealand
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# COLUTEA $x = 8$

<i>arborescens</i>	Bladder Senna	16	Tschechow 1930	H	Med., Asia Minor
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# CRACCA $x = 8$

<i>species</i>		16	Wood 1949		N. America
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# DIPHYSA $x = 8$

<i>robinoides</i>		16	Atchison 1951		C. America
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# GALEGA\* $x = 8$

<i>officinalis</i>	Goat's Rue & 3 spp.	16	Gardé & G. 1953	FoH	Eur., W. Asia
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# GLYCYRRHIZA $x = 8$

<i>aspera</i>		16	Tschechow 1930	M	E. Eur., C. Asia
<i>astragalina</i>		16	Covas & S. 1946	—	Chile
<i>echinata</i>	Chinese L.	16	Senn 1938	M	E. Med., S. Rus.
<i>glabra</i>	Liquorice Root	16	Tschechow 1935	M	Medit., Asia
<i>lepidota</i>		16	Heiser & W 1948	—	N. America
<i>uralensis</i>	Chinese L.	16	Tschechow 1930	MSu	Siberia

# HALIMODENDRON $x = 8$

<i>argenteum</i>		16	Atchison 1949a	H	E. Asia
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# PHACA (ASTRAGALUS) $x = 8$

<i>alpina</i>		16	Favarger 1949b		N. & Arctic
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# SABINEA $x = 8$

<i>carinalis</i>		16	Atchison 1951		Dominica
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# SPHINCTOSPERMUM $x = 8$

<i>constrictum</i>		16	Wood 1949		N. America
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<b>WISTARIA (MILLETTIA) <math>x = 8</math></b>						
<i>floribunda</i>	Japanese W.	$\begin{cases} 16 \\ 24 \end{cases}$ (3x)	Moriya & K. 1949b	H	Japan	
<i>frutescens</i>		16	Matsuura 1937	H	S.E. U.S.A.	
<i>macrostachya</i>		16	Kawakami 1930	H	C: U.S.A.	
<i>sinensis</i>	Chinese W.	16	Roscoe 1927	H	China	
<i>venusta</i>	Silky W.	16	" "	H	Japan	
<b>CARAGANA <math>x = 8</math></b>						
<i>arborescens</i>	Pea Tree	16	Tschechow 1930	H	Siberia, China	
<i>frutex</i>		32	" "	H	S. Russia, Siberia	
<b>CARMICHAELIA <math>x = (8) 16</math></b>						
<i>kirkii</i>		32	Slade 1953	H	New Zealand	
<i>monroi</i>		32	" "	H		
<i>petriei</i>		32	" "	H		
<i>williamsii</i>		32	" "	H		
<b>CHORDOSPARTIUM <math>x = (8) 16</math></b>						
<i>stevensoni</i>		32	Slade 1953	H	New Zealand	
<b>CORALLOSPARTIUM <math>x = (8) 16</math></b>						
<i>crassicaule</i>		32	Slade 1953	H	New Zealand	
<b>NOTOSPARTIUM <math>x = (8) 16</math></b>						
<i>carmichaeliae</i>		32	Slade 1953	H	New Zealand	
<b>SWAINSONA <math>x = (8) 16</math></b>						
<i>coronillaefolia</i>		32	Cooper 1936	H	Australia	
<b>OXYTROPIS <math>x = 8, 9</math></b>						
<i>montana</i>		16	Favarger 1953	—	Eur. Mtns.	
<i>halleri (uralensis)</i>		16	Tschechow 1930	H	C. & E. Europe	
<i>vaginata</i>		16	" "	—	Siberia	
<i>lapponica</i>		48	" 1935	—	Eur., N. Asia	
<i>campestris</i>		36	Jalas, L. & L. 1948	—	N. Temp. & Arct.	
<i>rishiriensis</i>		c. 53	Sakai 1934	—	Japan	
<b>MILLETTIA <math>x = 8, 10</math></b>						
<i>dasyphylla</i>		16	Toxopeus 1952	—	E. Indies	
<i>thonningii</i>		16	Atchison 1951	Sh	Trop. Africa	
<i>ovalifolia</i>		20	" "	—	Burma	
<b>ASTRAGALUS * <math>x = 8, 11, 12</math></b>						
$x = 8$						
<i>alopecuroides</i>		16	Kreuter 1930	H	Siberia	
<i>alopecuros</i> & 24 spp.		16	Tschechow 1935	—	C. Asia	
<i>candidissimus</i>		16		—	Siberia, N. Amer.	
<i>chinensis</i>		16		H	China	
<i>carolinianus (canadensis)</i>		16		FoH	N. America	
<i>danicus (hypoglottis)</i>		16		FoH	Europe	
<i>glycyphyllos</i>		16		FoH	C. Eur., W. Asia	
<i>incanus</i>		16	Lorenzo-A. & G. '50	H	S. France	
<i>frigidas</i>		16	L. & L. 1944b	H	N. America	
<i>sinicus</i>		16	Sugiura 1936b	H	China	
<i>boeticus</i>	Swedish Coffee	16, 30	Tschechow 1935	BH	Medit.	
<i>edulis</i>		28?	Kreuter 1930	Fo	Algeria	

**ASTRAGALUS (cont.)**

<i>adsurgens</i>	32	Sakai 1935	FoH	E. Siberia, Japan
<i>bubaloceras</i>	32	Tschechow 1935	—	Morocco
<i>campylotrichus</i>	32	" "	—	Temp. Asia
<i>campylorhynchus</i>	36	" "	—	Asia M., Turkest.
<i>asper</i>	48	" "	—	S. Eur., Caucasus
<i>cornutus (vimineus)</i>	48	" "	—	E. Siberia
<i>hamosus</i>	48	" "	H(V)	Medit., N. Africa
<i>scorpioides</i>	48	" "	—	Spain
<i>alpinus</i>	c. 56	" "	—	N. Arct. & Temp.
<i>cicer</i>	64	" "	FoH	S. Europe
<i>echinus</i>	64	" "	H	Asia Minor
<i>mexicanus?</i>	64	" "	HV	Ill., Texas
<i>onobrychis</i>	64, 72	" "	H	Eur., W. Asia
<i>verus</i>	64	" "	—	Persia
<i>brachylobus</i>	96	" "	—	Caspian

$x = 11, 12, 13$  (New World)

<i>gambellianus</i>	22	James 1951	—	W: U.S.A.
<i>crassicaupus</i> & 12 spp.	22	Vilkommerson 1943	—	N. America
<i>grayi</i>	44	" "	—	W: N. America
<i>beathii</i> & 9 spp.	24	" "	—	N. America
<i>didymocarpus</i>	24	James 1951	—	California
sp.	26	Schnack & C. 1947		S. America
<i>garbancillo</i>	26	Krapovickas & K. '51		Argentina
aff. <i>joergensenii</i>	26	" "		" "
<i>dispermus</i>	26	James 1951		S.W: U.S.A.

**HEBESTIGMA  $x = 10$** 

<i>cubense</i>	20	Atchison 1951		W. Indies
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**MUNDULEA  $x = 10, 11$** 

<i>suberosa</i>	{ 20	Atchison 1951	Ma	India, Ceylon
	22	Frahm-Leliveld 1953		

**PSORALEA  $x = 10$** 

<i>bituminosa</i>	20	Kreuter 1930	H	Canaries
<i>glandulosa</i> Jesuits' Tea	20	" "	B	Chile, Peru
<i>macrostachya</i> Leather Root	20	" "	R	N. America

**ROBINIA  $x = 10$** 

<i>fertilis</i>	20	Whitaker 1934c	H	S.E: U.S.A.
<i>hartwigii</i>	20	" "		" "
<i>kelseyi</i>	20	" "	H	N. Carolina
<i>luxurians</i>	20	" "	H	S.W: U.S.A.
<i>viscosa</i>	20	" "	H	S.E: U.S.A.
<i>pseudacacia</i> Black Locust	20	Kreuter 1930	H	E: U.S.A.
<i>boyntonii</i> (3x)	30	Whitaker 1934c	H	S.E: U.S.A.
<i>hispida</i> (3x) Rose Acacia	30	" "	H	" "

**AMORPHA  $x = 10$** 

<i>californica</i>	20	Kreuter 1930	H	California
<i>canescens</i> Lead Plant	20	Tschechow 1935	H	N. America

<b>AMORPHA</b> ( <i>cont.</i> )						
<i>microphylla</i> ( <i>nana</i> )	20	Tschechow 1935	H	C. & N. America		
<i>fruticosa</i> Bastard Indigo	40	„ 1930	DH	N. America		
<b>GLIRICIDIA</b> $x = 10, 11$						
<i>sepium</i> Madre	{ 20	Atchison 1951	HSh	Trop. Amer., <i>cult</i>		
		22				Simmonds 1954
<i>as maculata</i>		20				Sampath & R. 1949
<b>TEPHROSIA</b> * $x = 11$ (12, 16?)						
<i>candida</i> Boga Medola	22	Simmonds 1954	HMa	Trop. Asia		
<i>grandiflora</i>	22	Woods 1949	H	S. Africa		
<i>noctiflora</i> ( <i>hookeriana</i> )	22	Frahm-Leliveld 1953	Ma	Trop. Africa		
<i>vestita</i>	22			China, Sumatra		
<i>villosa</i>	22			Trop. Asia & Afri		
<i>virginiana</i>	22	Woods 1949	H	N. America		
<i>vogelii</i> Igun	22		IMa	Trop. Africa		
<i>conzattii</i>	22 + 0-2B			N. America		
23 species	22					
<i>purpurea</i>	24	Ramanathan 1950	DMa	Trop. Africa		
<i>hookeriana</i>	32	Kawakami 1930	Ma	E. Indies		
<i>toxicaria</i> Yarro Conalli	—		Ma	Trop. Amer.		

#### TRIBE VI: PODALYRIEAE

<b>PULTENAEAE</b> $x = 7, 8, 9$					
<i>gunnii</i>	14	Curtis 1952	H	Australia	
<i>daphnoides</i>	16	„ „	H		
<i>stricta</i>	16	„ „	H		
<i>tenuifolia</i>	16	„ „	H		
<i>juniperina</i>	18, 27, 36	„ „	H		
<b>BAPTISIA</b> $x = 9$					
<i>australis</i> Blue False Indigo	18	Tschechow 1931	H	S.E: U.S.A.	
<i>leucantha</i>	18	Atchison 1949a	H	„	
<i>sulphurea</i> Yellow False I.	18	Tschechow 1931	—	E: N. America	
<i>tinctoria</i> False Indigo	18	„ „	DHV	„	
<b>PIPTANTHUS</b> $x = 9$					
<i>laburnifolius</i> ( <i>nepalensis</i> )	18	Tschechow 1931	H	Himalayas	
<b>PODALYRIA</b> $x = 9$					
<i>australis</i>	18	Atchison 1949a	—	S. Africa	
<b>THERMOPSIS</b> $x = 9$					
<i>alterniflora</i>	18	Tschechow 1931		Turkestan	
<i>montana</i>	18	„ „	H	W: N. America	

#### TRIBE VII: GENISTEAE

<b>ROTHIA</b> $x=7$				
<i>trifoliata</i>	14	Rao 1950a	—	O.W. Tropics
<b>CROTALARIA</b> * $x=7, 8$				
<i>incana</i> Shack-Shack	14	Atchison 1950	Ma	Trop. America
<i>alata</i>	16	Kawakami 1930	Ma	Trop. Asia

# CROTALARIA (cont.)

<i>anagyroides</i>	16	Kawakami 1930	Ma	Venezuela
<i>arenaria</i>	16	Hagerup 1932	Ma	Senegambia
<i>argyrea</i>	16	Senn 1938	—	Trop. Africa
<i>dilloniana</i> & 7 spp.	16	Atchison 1950	—	"
<i>fulva</i>	16	Eichhorn 1937a	Ma	Trop. Asia
<i>junceae</i> Sunn Hemp & 2 spp.	16	Ramanujam <i>et al.</i> '33	FoMaT	Trop. Asia, Austr.
<i>laburnifolia</i> Rattlebox	16	" "	Ma	India, Phil.
<i>lanceolata</i>	16	Raghavan & V. '43	Ma	Trop. E. Africa
<i>medicaginea</i> & 3 spp.	16	Rao 1950a	Ma	Tropics
<i>mucronata (striata)</i>	16	Senn '38, Rao '50a	Ma	W. Indies
<i>obovata</i>	16	Hagerup 1932	—	Trop. Africa
<i>quinquefolia</i> & 9 spp.	16	Rao 1943	Ma	Trop. Asia
<i>spinosa</i>	16	Eichhorn 1937a	—	Abyssinia
<i>usaramoensis</i>	16	Kawakami 1930	Ma	E. Trop. Africa
<i>valetonii</i>	16	" "	Ma	E. Indies
<i>pilosa</i>	32	Atchison 1950	—	C. & S. Am., W. I.
<i>pumila</i>	32	" "	--	S: U.S.A., W.I.

# HEYLANDIA $x = 8$

<i>latebrosa</i>	16	Rao 1950a	—	S. India, Ceylon
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# ULEX $x = (8) 16$

<i>micranthus</i>	. 32	de Castro 1945a	—	Spain
<i>minor (nanus)</i> Dwarf Gorse	{ 32	" 1941	—	W. Europe
	{ 64	Tschechow 1931	—	
<i>parviflorus (calycotomoides)</i>	32, 64, 96	de Castro 1943	—	W. Medit.
<i>densus</i>	64	" 1941	—	Europe
<i>erinaceus</i>	64	" "	—	"
<i>ianthocladus</i>	64	" 1943	—	S.W. Spain
<i>europaeus</i> Gorse, Furze	{ 64	" 1941	FoH	W. Europe
	{ 96	Tschechow 1931		
<i>gallii</i> Dwarf Furze	80	de Castro 1943	H	"
<i>argenteus</i>	96	" "	—	Portugal

# STAURACANTHUS (ULEX) $x = 8$

<i>aphyllus</i>	48	de Castro 1943	—	Portugal, S.W. Sp.
<i>spectabilis</i>	48	" "	—	" Morocco
<i>vicentinus</i>	48	" 1945a	—	"

# NEPA (ULEX) $x = (8)$

<i>boivini</i>	c. 128	de Castro 1943	—	W. Medit.
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# ARGYROLOBIMUM $x = (8)$

<i>linnaeanum</i>	48	Lorenzo-Andreu 1951	—	Medit.
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# LUPINUS $x = 12$

<i>hirsutus</i> European Blue L.	24	de Zeeuw 1936	FoGH	Medit.
<i>v. micranthus</i>	50?	Tuschnjakowa 1935	—	Sahara
<i>tassilicus</i>	36	Eichhorn 1949	—	Egypt
<i>consentini</i>	32	Malheiros 1942	—	
<i>subcarnosus</i> Texas Lupin	{ 36	Tuschnjakowa 1935	FoH	Calif., Texas
	{ 48	Savchenko 1935		

# LUPINUS (cont.)

<i>albus</i>	Wolf Bean, White L.	30	Olszewska 1954		
		40	Savchenko 1935	FoV	S. Eur., W. Asia
		50	Malheiros 1942		
<i>as varius</i>		48	Savchenko 1935		
<i>angustifolius</i>	Blue L.	40	Malheiros 1942	Fo	Medit.
		48	Kawakami 1930		
<i>arboreus</i>	Tree L.	40	Savchenko 1935	FoH	California
<i>pilosus</i>		40	" "	FoH	Levant
		42	Tuschnjakowa 1935		
		46	de Zeeuw 1936		
<i>luteus</i>	Eur. Yellow L.	48	Kawakami 1930	G FoV	Medit.
		52	Malheiros 1942		
		52	Olszewska 1954		
<i>densiflorus</i>	Gully L.	48	Tuschnjakowa 1935	—	California
<i>douglasii</i>		48	" "	—	"
<i>elegans</i>		48	Savchenko 1935	—	Mexico
<i>micranthus</i>	Field L.	48	Tuschnjakowa 1935	—	W: N. Amer.
<i>mutabilis</i>	S. Amer. L.	48	Malheiros 1942	FoH	S. America
<i>nanus</i>	Sky Lupin	48	Tuschnjakowa 1935	H	California
<i>nootkatensis</i>		48	Maude 1940	—	N.W: N. Amer
					N.E. Asia
<i>ornatus</i>		48	Tuschnjakowa 1935	Fo	N.W: N. Amer.
<i>polyphyllus</i>	Washington L.	48	Cooper 1936	H	W: U.S.A.
<i>pubescens</i>	Rusty L.	48	Savchenko 1935	H	Mexico, Guat.
<i>hartwegii</i>		48-50	Tuschnjakowa 1935	H	Mexico
<i>barkeri</i>		50	" "	—	"
<i>rothmaleri</i>		52	Malheiros 1942	—	Medit.
CYTISUS $x = 11, 12 (13)$ $x_2 = 23, 25$					
<i>procumbens</i>		22	de Castro 1949	H	S.E. Europe
<i>fontanesii</i>		24	" "	—	W. Medit.
<i>albus</i>		24	Santos 1945	H	S.W. Europe
<i>as lusitanicus</i>		48	de Castro 1949		
<i>as multiflorus</i>	c. 48, c. 96	" "	" "		
<i>grandiflorus</i>		48	" "	H	Iber. Penin.
<i>leiocarpus</i>		48	" "	—	Hungary
<i>maderensis</i>		48	Santos 1945	H	Madeira
<i>proliferus</i>	Escabon	48	de Castro 1949	H	Canary Is.
<i>purgans</i>		c. 48	" "	H	W. Medit.
<i>purpureus</i>		48	Senn 1938	H	S. Austria
<i>austriacus</i>		48, 96	de Castro 1949	H	Eur., Cauc.
<i>nigricans</i>		48, 96	" "	H	S. Europe
<i>supinus (capitatus)</i>	c. 48, 96	" "	" "	H	C. & S. Europe
<i>rochelii</i>		96	" "	H	C. Europe
<i>patens</i>		c. 46	" "	—	Portugal
<i>praecox</i>		46	" "	H	cult
<i>reverchonii</i>		c. 46	" "	—	Medit.
<i>canariensis</i>	Genista	46	" "	H	Canary Is.
		48	Santos 1945		
<i>monspeulanus</i>	Montpelier B.	c. 46	de Castro 1949	H	S. Eur., Medit.
<i>as candicans</i>		48	" "		
<i>hirsutus</i>	c. 46, c. 48, 96	" "	" "	H	S. Eur., Asia M.

# **CYTISUS (cont.)**

<i>battandieri</i>	50	de Castro 1949	H	N.W. Africa
<i>ruthenicus</i>	50	" "	—	S.E. Europe
<i>sessilifolius</i>	52	Tschechow 1931	H	S. Europe, N. Afr.

# **GENISTA $x=12$**

<i>pilosa</i>	Hairy Greenweed	24	Tschechow 1931	—	W. & S. Europe
<i>falcata</i>		36	Santos 1945	H	Spain, Port.
<i>scorpius</i>		40	Lorenzo-Andreu & G. 1950	H	"Bal. Is."
<i>umbellata</i>		42	Santos 1945	—	N. Africa, Corsica
<i>germanica</i>		46-48	Reese 1952a	H	C. & W. Europe
<i>sagittalis</i>		{ c. 44	Tschechow 1931		
		{ c. 46, 48	Santos 1945	H	Eur., W. Asia
<i>anglica</i>	Petty Whin	{ 42	Maude 1939		
		{ 48	Santos 1945	H	W. Europe
<i>dorycnifolia</i>		48		—	Balearics
<i>ferox</i>		48	Tschechow 1931		N. Africa
<i>florida</i>		48	Santos 1945	H	Spain
<i>monosperma</i>		48		H	" N. Africa
<i>radiata</i>		48		H	S. Europe
<i>tinctoria</i>	Dyer's Greenweed	48	Tschechow 1931	DHV	Eur., Cauc.
<i>triangularis</i>		48-50			S.E. Europe

# **ECHINOSPARTON $x=11, 13$**

<i>boissieri</i>		44	de Castro 1945		S.E. Spain
<i>horridum</i>		44			Pyren., S. France
<i>barnadesii</i>		c. 52			Spain
<i>lusitanicum</i>		c. 52			C. Port. & Spain

# **SAROTHAMNUS (CYTISUS) $x=12$**

<i>scoparius</i>	Scotch Broom	{ 24, 48	Morton 1955		
		{ 46	Maude 1940	BHMSp	C. Europe
		{ 48	de Castro 1949		

# **LABURNUM $x=12$**

<i>alpinum</i>	Scotch L.	48	Tschechow 1931	H	S. Europe
<i>anagyroides</i>	Common L.	48	Ishikawa 1916	H	

# **SPARTIUM $x=12?$**

<i>juncum</i>	Spanish Broom	48-52	Tschechow 1931	HMT	Medit., Can. Is.
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## **TRIBE VIII: SOPHOREAE**

# **ORMOSIA $x=8$**

<i>krugii</i>		16	Atchison 1949a		W. Indies
<i>putamensis</i>		16	" "		C. America
<i>dasycarpa</i>	Necklace T.	16	" 1951		W. Indies

# **BELAIRIA $x=9$**

<i>ternata</i>		18	Atchison 1951		Cuba
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# **CAMOENSIA $x=9$**

<i>maxima</i>		18	Atchison 1951	H	W. Trop. Africa
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# **SWEETIA $x=9$**

<i>dasycarpa</i>		18	Covas 1949b		Brazil
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**PHASEOLUS**  $x = 11, 12$

<i>aborigineus</i>		22	Burkart & B. 1953	G	C. Amer.—Argen.
<i>aconitifolius</i>	Math or "Moth" B.	22	Tschechow & K. '32	FoGMAV	India, <i>cult</i>
<i>acutifolius</i>	Tepary Bean	22	Karpechenko 1925	V	Ariz., Mex.
<i>angularis</i>	Azuki B.	22	" "	GV	China, <i>cult</i>
<i>aureus</i>	Mung or Green Gram	22 (44)	" " Kumar & A. 1942b	FoGV	India, China, <i>cult</i>
<i>as radiatus</i>		22	Frahm-Leliveld 1953		
		24	Karpechenko 1925		
<i>calcaratus</i>	Rice Bean	22	Frahm-Leliveld 1953	GMAV	India, Malaya
<i>chrysanthos</i>		22	Muto 1929	V	China, Japan
<i>coccineus</i> ( <i>multiflorus</i> )	Scarlet Runner	22	Karpechenko 1925	V	Peru, <i>cult</i>
<i>helvulus</i>	Amberique B.	22	Senn 1938	FoGMA	N. America
<i>lunatus</i>	Lima Bean	22	Karpechenko 1925	V	Peru, <i>cult</i>
<i>mungo</i>	Urd or Black G.	22 24	" " Rau 1929b	GMA	Trop. Asia, <i>cult</i>
<i>polystachys</i>	Thicket B.	22	Allard & A. 1940	Ma	E: U.S.A.
<i>ricciardianus</i>	Assam B.	22	EKJ*	GV	Assam
<i>semierectus</i>		22	Senn 1938	FoMa	Trop. Amer.
<i>trilobus</i>	Jungli Math B.	22	Karpechenko 1925	Fo(G)Ma	O.W. Tropics
<i>vulgaris</i>	French, Kidney or Dwarf B	22	Thomas 1945*	GV	Peru, <i>cult</i>

**PUERARIA**  $x = 11, 12$

<i>thunbergiana</i>	Kudzu Vine		Simmonds 1954		
( <i>hirsuta</i> )			Suzuka 1950, Sakai 1951	FoRT	China, Japan
<i>javanica</i> ( <i>phaseoloides</i> )		{	Hardas & J. 1954 Frahm-Leliveld 1953	MaT	Malaya

**DIOCLEA**  $x = 12$

<i>boykinii</i>		24	Nemec 1910		N. America
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**CALOPOGONIUM**  $x = 18$

<i>mucunoides</i>		36	Frahm-Leliveld 1953	—	Guiana
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**ERYTHRINA** \*  $x = 21$

<i>caffra</i>		42	Atchison 1947c	H	S. Africa
<i>corallodendron</i>	Coral T.	42	" "	H	Trop. America
<i>crista-galli</i>	Ceibo	42	" "	FoHMaSh	S. America
<i>herbacea</i>		42	" "	FoH	S.E: U.S.A.
<i>indica</i>	Indian C. T.	{ 42 44	Rao 1945 Pouques 1945	DFoMShW	Trop. Asia, Austr.
<i>poepigiana</i>	Anauca Imortelle	42	Simmonds 1954	—	Peru
<i>velutina</i>		42	" "	—	Trop. America
<i>vespertilia</i> & 27 spp.		42	Atchison 1947c, 1951	H	Australia
<i>acanthocarpa</i>		84	1947c		S. Africa
<i>amazonica</i>		84	"		Peru, Brazil
<i>burtii</i>		c. 126	1951		Tanganyika

**TRIBE X: DALBERGEAE**

**ANDIRA**  $x = 10$

<i>inermis</i>	Cabbage Bark T.	20	Atchison 1951	MW	Trop. Amer., W. I.
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**DALBERGIA**  $x = 10$ 

<i>cochinchinensis</i>		20	Atchison 1951	—	Cochin China
<i>lanceolaria</i>		20	" "	—	India
<i>latifolia</i>	Rosewood T.	20	" "	W	"
<i>melanoxydon</i>	Blackwood T.	20	" "	W	Trop. Africa
<i>paniculata</i>		20	" "	—	India

**INOCARPUS**  $x = 10$ 

<i>edulis</i>	Tahiti Chestnut	20	Atchison 1951	N	Pacific Is.
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**TIPUANA**  $x = 10$ 

<i>tipu</i>		20	Atchison 1951	—	Argentina
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**GEOFFRAEA**  $x = 10$ 

<i>decorticans</i>	Channar	20	Covas & S. 1947	FoMW	S. America
<i>striata</i>	Mandubira	60	Burkart 1949a		

**PONGAMIA (GALEDUPA)**  $x = 10, 11$ 

<i>pinnata (glabra)</i>	Pongam,	{	20	Atchison 1951	FoHO ShW	India, Malaya, Austr., Poly.
	Indian Beech		22	Patel & N. 1937		

**PISCIDIA**  $x = 11$ 

<i>piscipula</i>		22	Atchison 1951	M	Fla., Mex., W. I
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**LONCHOCARPUS**  $x = 11$ 

<i>cyanescens</i>	Yoruba Indigo	22	Atchison 1949b	D	W. Trop. Africa
<i>formosianus</i>		22	" "	—	E. Asia
<i>hintonii</i>		22	" "	—	C. America
<i>latifolius</i>		22	" "	—	Trop. America
<i>leucanthus</i>		22	Covas & S. 1947	—	Uruguay
<i>longistylis</i>		22	Atchison 1949b	—	Mexico
<i>neuroscapha</i>		22	" "	—	Brazil
<i>punctatus</i>		22	" "	—	S. America
<i>violaceus</i>		22	" "	—	W. Indies
<i>utilis</i>	Timbo-blanco	44	" "	I	Amazon

**PTEROCARPUS**  $x = 11$ 

<i>macrocarpus</i>		22	Atchison 1951	—	Burma
<i>marsupium</i>	Indian Kino	44	" "	MW	India, Ceylon
<i>vidalianus</i>		44	" "	—	Philippines

**DERRIS**  $x = 11, 12, 13$ 

<i>elegans</i>		22	Toxopeus 1952	—	Burma
<i>pubipetale</i>		22	Tjio 1948	—	Java
<i>pterocarpus</i>		22	Atchison 1949b	—	S. America
<i>sinuata</i>		22	" "	—	Burma, Malaya
<i>malaccensis</i>	M. Derris	22, 24	Toxopeus 1952	I	Malaya
<i>uliginosa</i>		{ 22	Tjio 1948	—	O.W. Tropics
		{ 24	Toxopeus 1952		
<i>elliptica</i>	Tuba Root	22	Atchison 1949b	I	Malaya
		{ 22, 24, 36 (3x)	Toxopeus 1952		" <i>cult</i>
<i>heterophylla</i>		24	" "	—	E. Indies
<i>timorensis</i>		26	" "	—	Timor, Java, 1 Guinea

**PLATIMISCIMUM**  $x = 16$ 

<i>pinnatum</i>		32	Atchison 1951	W	Nicaragua
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## Group X

### HAMAMELIDALES

149-155

ST

### GARRYALES

157

ST

### MYRICALES

159

ST

### FAGALES

161-163

ST

### SALICALES

156

ST

### LEITNERIALES

158

S

### (BALANOPSIDALES)

160

ST

### CASUARINALES

164

ST

### URTICALES

165-170

HST



*Betula verrucosa*



## 151 HAMAMELIDACEAE

<b>DISTYLIUM</b> $x = 12$					
<i>racemosum</i>	24	Sugiura 1936a	H		Japan
<b>HAMAMELIS</b> $x = 12$					
<i>vernalis</i> Witch Hazel	24	Anderson & S. 1935	HM		E: N. America
<i>virginiana</i> N. Amer. W. H.	24	Whitaker 1933a	HM		" "
<b>PARROTIOPSIS</b> $x = 12$					
<i>jacquemontiana</i>	24	Anderson & S. 1935	H		Himalayas
<b>SINOWILSONIA</b> $x = 12$					
<i>henryi</i>	24	Anderson & S. 1935	H		C. China
<b>CORYLOPSIS</b> $x = 12$					
<i>pauciflora</i> Winter Hazel	24	Anderson & S. 1935	H		Japan
<i>spicata</i>	72	" "	H		"
<i>veitchiana</i>	72	" "	H		China
<b>FOTHERGILLA</b> $x = 12$					
<i>monticola</i>	48	Anderson & S. 1935	H		S.E: U.S.A.
<i>major</i>					
<b>LIQUIDAMBAR</b> $x = 15?$					
<i>styraciflua</i> Sweet Gum	30	Anderson & S. 1935	HM		E: U.S.A.

## 152 EUCOMMACEAE

<b>EUCOMMIA</b> $x = 17$					
<i>ulmoides</i> ♂	Ch. Gutta Percha	34	EKJ*	M	China

## 154 BUXACEAE

<b>BUXUS</b> $x = (7)$ 14					
<i>balearica</i> Spanish Box	28	Simonet & M. 1932	HW		W. Medit.
<i>sempervirens</i> Common Box	28	" "	HW		Eur., S.W. & C. A.
<b>SARCOCOCCA</b> $x = (7)$ 14 (Apomixis)					
<i>saligna (pruniformis)</i>	28	Simonet & M. 1932	H		Himalayas
<i>humilis</i>	56	" "	H		China
<i>ruscifolia</i>	56	" "	H		

## 155 PLATANACEAE

<b>PLATANUS</b> $x = (7)$ 21					
<i>acerifolia</i> London Plane	42	Sax 1933b	Sh		<i>cult</i>
<i>occidentalis</i> Buttonwood	42	" "	ShW		E: U.S.A.

## 156 SALICACEAE

<b>POPULUS*</b> $x = 19$					
<i>acuminata</i>	38	E. C. Smith 1943	—		C: U.S.A.
<i>angustifolia</i>	38	" "	H		S: U.S.A.

# POPULUS (cont.)

<i>cathayana</i>		38	E. C. Smith 1943		N.W. Ch.—Korea
<i>deltoides</i>	Cottonwood	38	Dillewijn 1942	H	E: N. America
<i>grandidentata</i>		38	Smith 1943	HW	" "
<i>koreana</i>		38	" "	H	Korea
<i>lasiocarpa</i>	Chinese P.	38	Wettstein, T. 1937	HW	C. & W. China
<i>laurifolia</i>		38	Smith 1943	H	Siberia
<i>maximowiczii</i>		38	" "	H	N.E. Asia, Japan
<i>sieboldii</i>	Japan. Aspen	38	Nakajima 1937	HW	Japan
<i>simonii</i>		38	Smith 1943	HW	N. China
<i>tomentosa</i>	Ch. White P.	38		H	"
<i>tremuloides</i>	Amer. Aspen	38		DW	N. America
<i>trichocarpa</i>	Calif. P.	38		HW	W: N. America
<i>alba</i>	White Poplar	38, 57	Dillewijn 1939	DHW	Eur., N. Asia
<i>nigra</i>	Black P.	38, 57	Suto 1944	HW	Eur., W. Asia
<i>tremula</i>	Eur. Aspen	37, 57	Johnsson 1940a	W	Eurasia, N. Africa
		(57-76)	" 1942b		
<i>tacamahaca</i>	Balsam P.	{ 38	Smith 1943		
( <i>balsamifera</i> )		{ 76	Blackburn & H. 1924	HMW	N. America
<i>candicans</i>	Balm of Gilead & 10 spp.	38	Smith 1943	HM	<i>cult</i>
<i>canescens</i>	Grey P.	38, 57	Peto 1938	HW	

# SALIX \* x = 19, 22

x = 19

<i>bockii</i> & 2 spp.		38	Wilkinson 1944		W. China
<i>gracilistyla</i>		38	Håkansson 1929a	H	Japan, Korea
<i>humboldtiana</i>		38	Bowden 1940a	—	S. America
<i>japonica</i> & 2 spp		38	Sinoto 1929	H	Japan
<i>myrtilloides</i> & 4 spp.		38	Holmberg 1931	H	Eurasia
<i>purpurea</i>	Purple Osier	38	Blackburn & H. 1924	HT	Temp. O.W.
<i>pyrolaeifolia</i>	Balsam Willow	38	L. & L. 1942	H	N.E. Asia
<i>repens</i> & 2 spp.		38	Nakajima 1937	H	Eur., N. Asia
<i>reticulata</i>		38	S. & S. 1941	H	N. & Arctic
<i>sericeana</i> ( <i>salvaefolia</i> )		38+0-4B	Almeida 1946	H	Europe, <i>cult</i>
<i>viminialis</i>	Osier, Basket W.	38	Sinoto 1929	TW	Eurasia
<i>sachalinensis</i>		38, c. 48	" "		Sachalin
<i>daphnoides</i>		{ 38	Blackburn & H. 1924		Eur., N. Asia
		{ 57	Wilkinson 1944		
<i>capraea</i>	Goat W.	{ 38, 76	" "	HP	
		{ 57	L. & L. 1942		
<i>aurita</i>		38, 76	Wilkinson 1944		
<i>lapponum</i>		38, 76	" "		
<i>myrsinites</i>		{ 38, 190	" "	H	
		{ 152	Holmberg 1931		
<i>bonplandiana</i>		42!	Bowden 1945b		Mexico
<i>alba</i>	White W.	76	Blackburn & H. 1924	W	Eur., W. Asia, N. Africa
<i>v. coerulea</i>	Cricket-bat W.	76	Wilkinson 1941		
<i>atrocinerea</i>		76	" "	—	Eur., S.W. & N. Asia
<i>babylonica</i>	Weeping W.	76	Almeida 1946	H	China
<i>cinerea</i>	Grey W.	76	Harrison 1926	H	Eur., S.W. & N. Asia

# SALIX (cont.)

<i>eriocarpa</i>		76	Nakajima 1942	—	Japan
<i>lasianдра</i>		76	Wilkinson 1944	—	W: N. America
<i>laurina</i>	Goat Tea W.	76	Heribert-Nilsson '28	—	Europe
<i>lucida</i>		76	Harrison 1926	—	N. America
<i>medemii</i>		76	Wilkinson 1944	—	Persia, Armenia
<i>pentandra</i>	Bay W.	76	Blackburn & H. 1924	H	Eur., N. Asia
<i>polaris</i>		76	Holmberg 1931	—	Arctic
<i>sieboldiana</i>		76	Wilkinson 1944	—	Japan
<i>dasyclados</i>		76, 114	L. & L. 1942	—	Europe
<i>fragilis</i>	Crack W.	{ 76	Blackburn & H. 1924	W	Eur., W. Asia
		{ 114	L. & L. 1942		
<i>nigricans</i>		114	Harrison 1926	H	Eur., W. & N. As
<i>borealis</i>		152	L. & L. 1942	H	" "
<i>superlaurina</i>		152	Heribert-Nilsson '35	H	cult
<i>dasycladioides</i>		152	" " "	H	Europe
$x = 19$ or $22?$					
<i>livida</i>		{ 44	Wilkinson 1944	—	Eur., N. Asia
as <i>depressa</i>		{ 38	L. & L. 1948	—	
<i>amygdalina</i> ( <i>triandra</i> )	38, 44, 88	88	Wilkinson 1944	—	Eur., Temp. Asia
<i>cordata</i>		44	" "	—	N. America
<i>phylicifolia</i>	Tea-leaf W.	{ 88	" "		
		{ 144	Håkansson 1333	H	Eur., N. Asia
		{ (38)	L. & L. 1942		
<i>glauca</i>	Grey-leaf W.	{ 152	Holmberg 1931	H	Eur. Alps, Asia,
		{ 176	Wilkinson 1944		N. America

# TOISUSU (SALIX) $x = 19$

<i>cardiophylla</i>	38	Suto 1938	—	N.E. Asia
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# 157 GARRYACEAE (CORNACEAE)

## GARRYA $x = 11$

<i>elliptica</i>	Silk-Tassel Bush	22	Meurman 1930	H	W: N. America
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# 159 MYRICACEAE

## MYRICA $x = 8$

<i>carolinensis</i>	North. Bayberry	16	Stokes 1937	HM	E: N. America
<i>cerifera</i>	S. Wax Myrtle	16	" "	HM	"
<i>pumila</i>		16	" "	—	"
<i>rubra</i>		16	Sugiura 1927	HSp	Tr. & Sub-tr. As.
<i>gale</i>	Sweet Gale	48	Hagerup 1941b	HSp	N. Temp.

## COMPTONIA $x = 8$

<i>peregrina</i>	Sweet Fern	32	Stokes 1937	HM	E: N. America
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# 161 BETULACEAE

## ALNUS $x = 14$ (Apomixis)

<i>crispa</i>	Amer. Green A.	28	Woodworth 1931	W	N. America
<i>incana</i>	Speckled A.	28	" "	W	N. Temp.

# ALNUS (cont.)

<i>maritima</i>		28	Woodworth 1931	W	N. America
<i>rubra</i>	Red Alder	28	Wetzel 1929	W	W: N. America
<i>rugosa</i>	Hazel A.	28	Woodworth 1931	W	E: N. America
<i>tenuifolia</i>	Mountain A.	28	Gram <i>et al.</i> 1941		W: N. America
<i>viridis</i>	Eur. Green A.	28	Wetzel 1929	W	N. Temp.
<i>cordata</i>	Italian A.	{ 28	Gram <i>et al.</i> 1941	W	Eur., S.W. Asia
		42	Poucques 1949b		
<i>hirsuta</i>	Manchurian A.	28	Gram <i>et al.</i> 1941	—	N.E. Asia
<i>v. sibirica</i>		28	Poucques 1949b		
<i>as tinctoria</i>		42	" "		
<i>orientalis</i>		{ 28	Poucques 1949b	—	E. Eur., S.W. Asia
		42	Gram <i>et al.</i> 1941		
		28	Wetzel 1929		
<i>japonica</i>	Jap. Alder	{ 42	Gram <i>et al.</i> 1941	W	Japan, N.E. Asia
		56	Woodworth 1931		
<i>subcordata</i>	Caucasian A.	{ 28	Wetzel 1929	W	Cauc., Persia
		42, 56	Gram <i>et al.</i> 1941		
<i>glutinosa</i>	Eur. Black A.	{ 28	Wetzel 1929	MW	Eur., N. Asia
		56	Woodworth 1931		
<i>borealis</i>		56	Poucques 1949b	—	Japan
<i>spaethii</i>		56	Woodworth 1931	W	<i>cult</i>

# BETULA x = 14

<i>coerulea</i>		28	Woodworth 1931	—	E: N. America
<i>fontinalis</i>	Water Birch	28	" "	W	W: N. America
<i>glandulosa</i>		28	Poucques 1949c	—	N. America
<i>humilis</i>		28	Jaretsky 1930	—	Eur., N. Asia
<i>lenta</i>	Sweet B.	28	Woodworth 1931	MW	N. America
<i>luminifera</i>		28	Poucques 1949c	—	China
<i>maximowicziana</i>	Monarch B.	28	Woodworth 1931	W	Japan
<i>nana</i>	Dwarf Arctic B	28	Flovik 1940	W	N. Region
<i>nigra</i>	River B.	28	" "	W	N. America
<i>populifolia</i>	Grey B.	28	" "	—	E: N. America
<i>utilis</i>	Himalayan B.	28	" "	TW	Japan, Himal.
<i>raddeana</i>		28	Poucques 1949c	—	Caucasus
<i>verrucosa</i>	Silver Birch	{ 28	Johnsson 1940b	HOW	Eur., N. Asia, N.
<i>(pendula, alba)</i>		42	" 1944		Amer.
<i>mandschurica</i>	Jap. White B.	56	Woodworth 1929a	—	Jap., Manch., Kor.
<i>v. japonica</i>		28!	" "		
<i>papyrifera</i>	Paper B., Canoe B.			TW	N. America
<i>v. occidentalis</i>		84	Woodworth 1931		
<i>as tyalliana</i>		28	Poucques 1949b		
<i>v. cordifolia</i>	Mtn. P. B.	56	Woodworth 1929a		
<i>v. subcordata</i>		56	" 1931		
<i>v. kenaica</i>		70	" "		
<i>callosa</i>		56	L. & L. 1948	—	Europe
<i>celtibérica</i>		56	de Castro 1944	—	Iber. Penin.
<i>fruticosa</i>		56	Poucques 1949c	—	N.E. Asia, China
<i>pubescens (odorata)</i>		56	Johnsson 1940a	H	Eur., N. Amer., N. Asia
<i>v. urticifolia</i>		56	Jaretsky 1930	—	<i>cult</i>
<i>pumila</i>	Low B.	56	Woodworth 1931	HW	N. America
<i>tortuosa</i>		56	L. & L. 1944b	—	Europe

# BETULA (cont.)

<i>davurica</i>		{ 56	Poucqes 1949c	W	N.E. Asia
		90	Woodworth 1929a		
<i>grossa</i>	Jap. Cherry B.	84	" 1931	W	Japan
<i>lutea</i>	Yellow B.	84	" "	W	N. America

# 162 CORYLACEAE

## CARPINUS x = 8

<i>caroliniana</i>	Bluebeech	16	Woodworth 1931	W	N. America
<i>cordata</i>		16	" "	W	Japan
<i>japonica</i>	Jap. Hornbeam	16	" "	W	"
<i>laxiflora</i>	Loose flower H.	16	" "	W	"
<i>orientalis</i>	Oriental H.	16	" "	W	S. Europe
<i>tschonoskii</i>	Yeddo H.	16	Johnsson 1942a	W	Japan
<i>turczaninowii</i>		16	Woodworth 1931	W	China
<i>betulus</i>	Eur. H.	16, 64	Johnsson 1942a	W	Europe, Persia

## OSTRYA x = 8

<i>carpinifolia</i>	Eur. Hop. H.	16	Woodworth 1931	—	S. Eur., A. Minor
<i>japonica</i>	Jap. Hop H.	16	" "	—	E. Asia
<i>virginiana</i>	Amer. Hop. H.	16	" "	W	E: U.S.A.
<i>davidiana</i>		16	" "	—	Asia Minor

## CORYLUS x = 11, 14

<i>avellana</i>	Eur. Hazel	{ 22	Danielsson 1946	NW	Europe, W. Asia
	Cobnut	28	Woodworth 1929b		
<i>tibetica</i>		{ 22	Poucqes 1950	N	Himalayas
		28	Woodworth 1929b		
<i>americana</i>	Amer. Hazel	28	" "	N	N. America
<i>colurna</i>	Turkey Filbert	28	" "	N	E. Eur., A. Minor, Himalayas
<i>heterophylla</i>	Siberian F.	28	" "	N	N.E. Asia
<i>maxima</i>	Giant F.	28	" "	N	Eur., A. Minor
<i>pontica</i>	Caucasian F.	28	" "	N	E. Eur., A. Minor, Himalayas
<i>rostrata</i>	Beaked H.	28	" "	N	E: N. America
<i>sieboldiana</i>	Japanese F.	28	" "	N	Japan

# 163 FAGACEAE

## CASTANEA x = 12

<i>crenata</i>	Jap. Chestnut	24	Almeida 1947b	NW	Japan
<i>dentata</i>	American Ch.	24	Jaretsky 1930	NW	E: U.S.A.
<i>molissima</i>		24	Poucqes 1950	NW	China
<i>sativa</i>	Sweet or	24	Jaretsky 1930	HNW	S. Eur., W. Asia,
( <i>vesca</i> )	Spanish Ch.				N. Africa

## FAGUS x = 12

<i>syvatica</i>	Eur. Beech	24	Jaretsky 1930	NOW	Europe
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## QUERCUS \* x = 12

<i>acutissima</i>	Sawtooth Oak	24	R. Yamazaki 1936	W	China
<i>alba</i>	White O.	24	Sugiura 1931	W	N. America

# QUERCUS (cont.)

<i>chrysolepis</i>	Canyon Live O.	24	Duffield 1940	—	California
<i>coccifera</i>	Kermes Oak	24	Ghimpu 1929b	Fo,W	Medit.
<i>dalechampii (aurea)</i>		24	Jaretsky 1930	—	Eur., W. Asia
<i>fruticosa (humilis)</i>		24	Natividade 1937	NW	Medit.
<i>glandulifera</i>		24	Jaretsky 1930	—	Japan
<i>ilex</i>	Holm Oak	24	Natividade 1937	HW	Medit., S.W. Asia
<i>imbricaria</i>	Shingle O.	24	H. J. Sax 1930	W	N. America
<i>incana</i>		24	Vignoli 1933	W	Himalayas
<i>libani</i>	Lebanon Oak	24	Jaretsky 1930	W	Syria
<i>lusitanica</i>	Portuguese O.	24	Natividade 1937	W	Med., S.W. Asia
<i>macrocarpa</i>	Bur Oak	24	H. J. Sax 1930	W	N. America
<i>marilandica</i>	Blackjack O.	24	Friesner 1930	W	"
<i>mongolica</i>	Mongolian O.	24	H. J. Sax 1930	Fo,W	N.E. Asia
<i>muhlenbergii</i>	Chinkapin O	24	" "	W	N. America
<i>nigra</i>	Water O.	24	Jaretsky 1930	"	"
<i>palustris</i>	Pin O.	24	Ghimpu 1929b	W	"
<i>polymorpha</i>		24	Vignoli 1933	W	Mexico
<i>pontica</i>		24	Jaretsky 1930	W	Asia Minor
<i>prinoides</i>	Dwarf Chinkapin O.	24	Friesner 1930	W	N. America
<i>prinus</i>	Swamp Ch. O.	24	" "	W	"
<i>pubescens (lanuginosa)</i>		24	Vignoli 1933	W	S.E. Eur., W. Asia
<i>pyrenaica (toza)</i>		24	" "	W	S. Europe
<i>petraea</i>	Durmast O.	24	Natividade 1937	W	Eur., W. Asia
<i>robur</i> & 19 spp.		24	Duffield 1940	DNW	Eur., N. America
<i>tomentosa</i>		24	Vignoli 1933	W	Mexico
<i>dentata</i>	Jap Silk Worm O.	48	H. J. Sax 1930	Fo,W	Jap., Kor., Ch.

## 164 CASUARINACEAE

### CASUARINA x = 11, 12, 13

<i>distyla</i>		22, 44	Purcell 1953	HW	Aust., Tasm.
<i>equisetifolia</i>	Horsetail Tree	24	Wetzel 1929	HShW	N. Austr., cult
<i>montana</i>		24	" "	W	Malaya
<i>nana</i>	Dwarf She-Oak	36	Purcell 1953	H	New South Wales
<i>suberosa</i>	Erect Beefwood	48	" "	HW	Austr., Tasm.
<i>stricta</i>	Coast Cas.	26	" "	HShW	" "
<i>torulosa</i>	She-Oak	26	" "	HW	E. Australia
<i>paludosa</i>		c. 52	" "	—	Austr., Tasm.

## 165 ULMACEAE

### CELTIS x = 10, 11, 14

<i>laevigata</i>		20	Bowden 1945b	H	S.E. U.S.A.
<i>sinensis</i>		20	" "	H	Ch., Kor., Jap.
<i>australis</i>	Hackberry	40	" "	FoH	S. Eur., N. Africa
<i>occidentalis</i>	Sugar-berry	{ 20	" "	FH	E: N. America
		28	Sax 1933a		
<i>spinosa</i>		22	Covas & S. 1947	—	Brazil

### HOLOPTELEA (ULMUS) x = 14

<i>integrifolia</i>		28	Capoor 1937	W	India
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<b>ZELKOVIA</b> $x = 14$					
<i>serrata</i>	Keaki	28	Sax 1933a	W	Japan
<b>ULMUS</b> $x = 14$					
<i>carpinifolia</i>	Smooth-leaf Elm	28	Sax 1933a	W	Eur., S.W. Asia
<i>hollandica</i>	Dutch E.	28	" "	—	<i>cult</i>
<i>fulva</i>	Slippery Elm	28	" "	MW	N. America
<i>japonica</i>	Japanese E.	28	" "	W	E. Asia
<i>laciniata</i>	Manchurian E.	28	" "	W	"
<i>laevis</i>	Russian E.	28	" "	W	Eur., Cauc.
<i>procera</i>	English Elm	28	" "	W	Eur., N. Asia
<i>pumila</i>	Siberian E.	28	Leliveld 1933	W	N. Asia
<i>racemosa</i>	Rock Elm	28	Sax 1933a	W	N. America
<i>wilsoniana</i>		28	Krijthe 1939	W	China
<i>americana</i>	White Elm	28	Krause 1930	W	N. America
		56	Sax 1933a		
<i>glabra</i>	Scotch Elm	28, (42, 56)	Ehrenberg 1949	HW	Eur., N. Asia
<i>v. montana</i>		28	Leliveld 1933		
<i>v. scabra</i>		28	Sax 1933a		

## 167 MORACEAE

<b>DORSTENIA</b> $x = 12, 13, 14$ , etc.					
<i>barteri</i>		24	Krause 1930	—	Trop. Africa
<i>convexa</i>		24	" "	—	"
<i>yambuyaensis</i>		24	" "	—	"
<i>plumeriaefolia</i>		26	" "	—	Brazil
<i>erecta</i>		28	" "	HM	"
<i>contrajerva</i>	Contrayerva	30	" "	HM	Trop. America
<i>argentata</i>	Brazilian C.	32	" "	M	Brazil
<i>scabra</i>		40	" "	—	Trop. Africa
<i>mannii</i>		48	" "		
<b>BROSIMUM</b> $x = 13$					
<i>alicastrum</i>	Breadnut	26	Krause 1930	(V)W	Trop. America
<b>BROUSSONETIA</b> $x = 13$					
<i>papyrifera</i>	Paper Mulberry	26	Bowden 1940a	T	China, Japan
<i>kazinoki</i>		26, 39	Seki 1950	T	Japan, Korea
<b>FICUS</b> $x = 13$					
<i>altissima</i>		26	Krause 1931	—	Trop. Asia
<i>asperima</i>	Sandpaper F.	26	Condit 1933	ToW	India
<i>benghalensis</i>	Banyan Tree	26	" "	FoShW	India, Trop. Afr
<i>benamina</i>		26	" "	FoSh	Trop. Asia
<i>calophylloides</i>		26	" "	—	Philippines
<i>carica</i>	Fig	26	" 1928	FM	Med., <i>cult</i>
<i>cumingii</i>		26	" 1933	—	Philippines
<i>diversifolia</i>	Mistletoe Fig	26	" "	Fo	Malaya
<i>erecta</i>		26	" 1928	H	India, Ch., Jap.
<i>eugenioides</i>	Eugenia F.	26	" 1933	—	Australia
<i>elastica</i>	India-rubber T.	26	Sugiura 1936	HRu	Trop. Asia
<i>glabella</i>	Smooth F.	26	Condit 1933	Ru(V)	Himal., Burma, Malaya
<i>glomerata</i>	Cluster Fig	26	" 1928	F	India, Burma
<i>heneana</i>		26	" 1933	—	Australia
<i>hirsuta (panduraefolia)</i>		26	Krause 1930	—	Brazil

# **FICUS (cont.)**

<i>indica</i>	Indian Fig	26	Condit 1933	Fo <sub>1</sub> W	Trop. Asia, Mal.
<i>macrophylla</i>	Moreton Bay F.	26	" 1928	—	Australia
<i>mitrophora</i>		26	" "	Sh	W. Indies
<i>mysorensis</i>	Mysore F.	26	" "	Sh	India
<i>palauanensis</i>		26	" "	T	Philippines
<i>palmata</i>		26	" "	—	N.W. Ind., Abyss., Arabia
<i>pandurata</i>	Riddle-leaf F.	26	" "	—	China
<i>papaya</i>		26	" "	—	Malaya
<i>parcelli</i>		26	Krause 1931	—	Pacific Is.
<i>platypoda</i>		26	Condit 1928	—	Australia
<i>populnea (brevifolia)</i>		26	" "	—	S. America
<i>pseudocarica</i>	Abyss. F.	26	" "	—	Abyssinia
<i>pseudopalma</i>		26	" 1933	—	Philippines
<i>pumila</i>	Ok-gue	26	" 1928	FH	China, Japan
<i>quercifolia</i>		26	" 1930	—	Burma, Malaya
<i>religiosa</i>	Peepel Tree	26	" 1933	Fo <sub>1</sub> H	India
<i>retusa</i>	India Laurel	26	" "	MRu	India, Malaya
<i>rubiginosa</i>		26	" 1928	—	Australia
<i>scabra</i>	Rough Fig	26	" 1933	T	New Hebrides
<i>schlechteri</i>		26	Krause 1930	—	S. Ind., New Cal.
<i>subscabrida</i>		26	Condit 1933	—	W. Indies
<i>ulmifolia</i>	Elm Leaf F.	26	" "	—	Malaya
<i>vogelii</i>	Abba Tree	26	" "	Ru	Trop. Africa
<i>watkinsiana</i>		26	" "	—	Australia

<b>CASTILLOA</b>	<i>x</i> = 14				
<i>elastica</i>	Panama Rubber	28	EKJ*	Ru	Mex. T. Amer.

<b>CECROPIA</b>	<i>x</i> = 14				
<i>palmata</i>	Silverleaf S.	28	Krause 1931	—	Brazil
<i>peltata</i>	Indian S.	28	" "	(V)W	Trop. America
<i>leucocoma</i>		28	Bouharmont 1954	—	S. America

<b>ARTOCARPUS</b>	<i>x</i> = 14				
<i>cannoni</i>		28	Krause 1931	H	S. Sea Is.
<i>integra</i>	Jack Fruit	56	EKJ*	FFoN	India, Malaya
				ReW	
<i>lakoocha</i>		56	Banerji & H. 1954	—	India, Malaya
<i>communis</i>	Bread Fruit	56	EKJ*		
<i>(incisa)</i>		54	Nishiyama & K. '42	FoMTVW	Malaya, Pacific
	(seedless)	c. 81 (3x)	" "		

<b>MUSANGA</b>	<i>x</i> = 14				
<i>cecropioides</i>		28	Bouharmont 1954	—	Congo

<b>MORUS</b>	<i>x</i> = 14				
<i>acidosa</i>		28	Osawa 1920	F	Jap., Ch., Korea
<i>atropurpurea</i>		28	" "	F	Temp. Asia
<i>bombycis</i>		28	Sinoto 1929	FFo <sub>1</sub>	"
<i>cordatifolia</i>		28	Ishida 1951	—	Japan
<i>indica</i>	Silk Mulberry	28	Tahara 1910	FFo <sub>1</sub>	Trop. Asia
<i>kagayamae</i>		28	Osawa 1920	Fo <sub>1</sub>	Japan
<i>laevigata</i>		28	Janaki Ammal 1948	—	W. Himalayas
<i>microphylla</i>		28	" "	F	Texas, Mexico
<i>multicaulis</i>	Downing M.	28	Osawa 1920	F	N. America

# MORUS (cont.)

<i>rubra</i>	Red Mulberry	28	Janaki Ammal 1948	F	E: U.S.A.
<i>serrata</i>		28	" "	—	W. Himalayas
<i>alba</i>	White M.	28	Osawa 1920	FFo <sub>1</sub> TV	Temp. Asia
v. <i>makado</i> (3x)		42	" "		
( <i>atropurpurea</i> × <i>alba</i> )					
<i>cathayana</i>		56, 84, 112	Janaki Ammal 1948	—	Hupei, Szechuan
<i>nigra</i>	Black M.	308!	P. T. Thomas, D. & L. C. 1942	FFo <sub>1</sub> W	Persia, <i>cult</i>

# CUDRANIA *x* = 14

<i>tricuspidata</i>	Silkworm T.	56	Sinoto 1929	FFo <sub>1</sub> D	Jap., Ch., Korea
( <i>iriloba</i> )					

# 169 URTICACEAE

## PARIETARIA *x* = 7, 13

<i>ramiflora</i>	Pellitory	14	Krause 1930	M(V)	S. Eur., S.W. Asia
<i>judaica</i>		26	" "	—	Greece

## BOEHMERIA (URTICA) *x* = 7, 13

<i>biloba</i>		28	Krause 1930	—	Japan
<i>nivea</i>	Rhea Fibre, Ramie	28	" "	T	Trop. Asia
<i>argentea</i>		52	" "	T	Mexico

## URTICA *x* = 11, 12, 13

<i>membranacea</i>		{ 22	Fothergill 1936	—	Medit.
		{ 24	Negodi 1930		
<i>urens</i>	Dog Nettle	24, 26, 52	L. & L. 1942a	T	N. Temp.
<i>atrovirens</i>		26	Fothergill 1936	T	S. Europe
<i>grandidendata</i>		26	" "	T	Java
<i>pilulifera</i>	Roman N.	26	Krause 1931	T	Med.—Ind.
<i>dioica</i>	Common Sting. N.	{ 52	Fothergill 1936		
		{ 48	Meurman 1925	VMT	N. Temp.
		{ 48	L. & L. 1942a		
<i>cannabina</i>		52	Fothergill 1936	T	A. Minor, Persia

## PILEA *x* = 12

<i>cadieriei</i>		48	Hamel 1939	—	Indo-China
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# 170 CANNABINACEAE

## HUMULUS *x* = 8, 10

<i>japonicus</i>		♀ : 14 + XX	Kihara & H. 1932	T	Japan, China
		♂ : 14 + XY <sub>1</sub> Y <sub>2</sub>			
<i>lupulus</i>	Hop	♀ : 16 + X <sub>1</sub> X <sub>1</sub> X <sub>2</sub> X <sub>2</sub>	Kihara 1929	B	Eurasia
		♂ : 16 + X <sub>1</sub> X <sub>2</sub> Y <sub>1</sub> Y <sub>2</sub>	Ono 1937		

## CANNABIS *x* = 10

<i>sativa</i> L	Hemp	20	Medvedeva 1935	MTO	C. Asia, Him.
	Ganja	(40)	Furusato 1940		



## Group XI

### CELASTRALES

171-181

ST

### SANTALALES

184-189

HST

### RUTALES

194-196

(H)ST

### SAPINDALES

198-206

ST

### (OLACALES)

182, 183

ST

### RHAMNALES

190-193

ST

### MELIALES

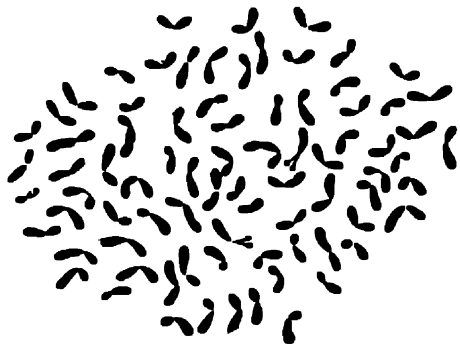
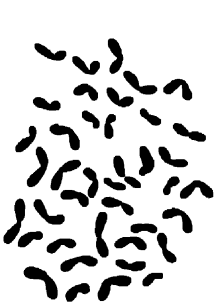
197

ST

### JUGLANDALES

207, 208

T



*Aesculus hippocastanum* & *Ae. carnea*



## 171 AQUIFOLIACEAE

ILEX  $x = 9, 10$

<i>opaca</i>	Amer. Holly	36	Jensen 1944	H	N. America
<i>verticillata</i>	Winterberry	36	" "	M	"
<i>aquifolium</i>	Holly	40	Maude 1940	HMW	Eur., W. Asia
<i>dumosa</i>		40	Andres & S. 1945	—	Brazil
<i>paraguariensis</i>	Maté,	40	" "	B	"
	Paraguay Tea	40	E.K.J.*		
<i>serrata</i>		40	Nakajima 1942		Japan
<i>theezans</i>		40	Andres & S. 1945		Brazil
<i>vomitoria</i>	Yapon Tea	40	Jensen 1944	B	S.E: U.S.A.
<i>decidua</i>	Possum-Haw	40	" "	H	S: U.S.A.
<i>monticola (montana)</i>		40	" "	H	E: U.S.A.

## 172 EMPETRACEAE

EMPETRUM  $x = 13$

<i>nigrum</i> ♂ ♀	Crowberry	{ 26	Wanscher 1933b	F	Eur., N. Asia
		{ 26	Hagerup 1927		
<i>v. hermaphroditum</i>		52	" "	H	Arctic

## 173 CELASTRACEAE

PACHYSTIMA  $x = 8$

<i>canbyi</i>		32	Bowden 1940a	H	Virginia
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EUONYMUS  $x = 8$

<i>fortunei (radicans)</i>		32	Bowden 1940a	H	China, Japan
<i>japonicus</i>	Jap. Sp. Tree	32	Sugiura 1931	HV	" "
<i>europaeus</i>	Spindle Tree	64	Wulff 1937b	HRu	Eur., Asia Minor
<i>americanus</i>	Strawberry Bush	64	Bowden 1940a	H	S.E: U.S.A.

CELASTRUS  $x = 23$

<i>orbiculatus</i>		46	Bowden 1945a	H	Japan, China
<i>scandens</i>	Waxwork	46	" 1940a	H	E: N. America

MAYTENUS  $x = 40$

<i>vitis-idaea</i>		80	Covas & S. 1947	—	Peru
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## 181 STACKHOUSIACEAE

STACKHOUSIA  $x = 10$

<i>monogyna</i>		20	W. D. Jackson unp.	H	Australia
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## 185 LORANTHACEAE

STRUTHANTHUS  $x = 8$

<i>angustifolius</i>		16	Covas 1949b	Par	Trop. Amer.
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PHRYGILANTHUS  $x = 8$

<i>flagellaris</i>		16	Schnack & C 1947	Par	Brazil
<i>verticillatus (3x?)</i>		24	" "	Par	Chile

<b>LORANTHUS (SCURRULA, DENDROPTHORA) <math>x = 8, 9</math></b>				
<i>atropurpureus</i>	16	Rauch 1936	Par	India, Malaya
<i>pentandrus</i>	16	" "	Par	Java
<i>longiflorus</i>	18	Kumar & A. 1942c	Par	Mal.—Australia
<i>rubromarginatus</i>	18	Pienaar 1952	Par	S. Africa

<b>PSITTACANTHUS <math>x = 10</math></b>				
<i>cunefolius</i>	20	Schnack & C. 1947	Par	Peru

<b>VISCUM <math>x = 10, 12</math></b>				
<i>album</i>	Mistletoe	20	Steindl 1935	MPar Eur., Trop. As.
<i>articulatum</i>		24	" "	Par Trop. Australia

## 186 SANTALACEAE

<b>SANTALUM <math>x = 10</math></b>				
<i>album</i>	Ind. Sandalwood	20	G. S. Iyengar 1937	ParMPW Ind., Malaya

<b>THESIUM <math>x = 10, 12</math></b>				
<i>wightianum</i>		20	L. N. Rao 1942	ParW India
<i>montanum</i>		24	Schulle 1933	Par Europe

<b>BUCKLEYA <math>x = 15</math></b>				
<i>joan</i>		30	Nakajima 1937	Par Japan

<b>OSYRIS <math>x = 10, 15</math></b>				
<i>arborea</i>	Bischar Tea	30	L. N. Rao 1942	BM India
<i>alba</i>		40	Schaeppi & S. 1937	Par Medit.

<b>PYRULARIA <math>x = 19</math></b>				
<i>pubera</i>		38	Jensen 1939	Par N. America

<b>IODINA <math>x = (12) 36</math></b>				
<i>rhombifolia</i>		72	Schnack & C. 1947	Par Brazil

## 189 BALANOPHORACEAE

<b>CYNOMORIUM <math>x = 12</math></b>				
<i>coccineum</i>		24	Juel, T. 1927	ParM Medit.

<b>HELOSIS <math>x = 18</math></b>				
<i>guyannensis (cayennensis)</i>		36	Fagerlind 1938	Par Trop. America

<b>THONNINGIA <math>x = 18</math></b>				
<i>sanguinea</i>		36	Mangenot 1947	Par Trop. Africa

<b>BALANOPHORA <math>x = ?</math> (Apomixis)</b>				
<i>dloica</i>	c. 18	Panje 1934	Par	India, Burma
<i>japonica</i>	94–112	Kuwada 1928	Par	Japan

## 190 RHAMNACEAE

<b>RHAMNUS <math>x = 10, 12, 13</math></b>				
<i>frangula</i>	Alder Buckthorn	{ 20 Rutland 1941	HMW	Eur., N. Asia, N. Africa
		26 Wulff 1937b		

# RHAMNUS (cont.)

<i>californicus</i>	Coffee Berry	24	Bowden 1945b	—	California
<i>catharticus</i>	Purging B.	24	Wulff 1939a	DHM	Eur., N.As., N.Afr.
<i>utilis</i>		24	Bowden 1945b	D	China

# ZIZYPHUS $x = 10, 12, 13$

<i>oenoplia</i>		{ 20	Srinivasachar 1940	—	Tr. Asia, Austr.
		{ 48	Srinivasan 1952		
<i>sativa</i>	Chinese Jujube	{ 24	Morinaga <i>et al.</i> 1929	F	Medit., China
<i>as vulgaris</i>		{ 26	Chiarugi 1930b		
<i>ujuba</i>	Indian J.	{ 24	Morinaga <i>et al.</i> 1929		
		{ 40	Srinivasachar 1940	FFo <sub>1</sub> W	India, Malaya
		{ 48, 72, 96	Srinivasan 1952		
<i>mauritiana</i>		48	" "	F	Trop. Asia
<i>rotundifolia</i>		72	" "	—	"

# COLLETIA $x = 11$

<i>cruciata</i>	Anchor Pl.	22	Dolcher 1947	H	S. Brazil, Uruguay
<i>spinosa</i>		22	" "	HM	S. America

# CEANOTHUS\* $x = 12$

<i>americanus</i>	New Jersey Tea	24	Bowden 1940a	B	E: U.S.A.
<i>arboreus</i>		24	" 1945b	H	Calif.
<i>thyrsiflorus</i>	Blue Blossom	24	Nobs 1942	H	"
20 spp.		24	" 1942	H	W: N. America

# HOVENIA $x = 12$

<i>dulcis</i>	Raisin Tree	24	Sugiura 1936b	F W	Himal.—Japan
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# PALIURUS $x = 12$

<i>spina-christi</i>	Jerusalem Thorn	24	Dolcher 1947	H	S. Eur.—N. China
<i>(aculeatus)</i>					

# SAGERETIA $x = 12$

<i>theezans</i>		24	Bowden 1945b	BF	Burma, China
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## 191 ELAEAGNACEAE

### ELAEAGNUS $x = 14$

<i>angustifolia</i>	Oleaster,	28	Fyfe 1945*	BFH	S. Eur., W. Asia
	Trebizond Date				
<i>commutata</i>	Silverberry	28	" "	FH	S. & C. U.S.A.
<i>(argentea)</i>					
<i>pungens</i>		28	" "	FH	Japan
<i>umbellata</i>		28	" "	FH	China, Him., Jap.

### HIPPOPHAE $x = 6$

<i>rhamnoides</i>	Sea Hawthorn	12, 24	Darmer 1947	H	Eur., Temp. Asia
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### SHEPHERDIA $x = 11, 13$

<i>canadensis</i>	Buffalo-berry	22	Cooper 1932	BFHN	N. America
<i>argentea</i>	Silver B.	26	Fyfe 1945*	FH	"

# 193 AMPELIDACEAE (VITACEAE)

## TETRASTIGMA $x = 11, 13$

<i>sulcatum</i>	22	Krishnaswamy <i>et al.</i> 1954	—	S.E. Asia
<i>lanceolarium</i>	44	" "	—	"
<i>rumiscispermum</i>	52	Eichhorn 1938	—	Trop. Asia
<i>voinerianum</i>	52	" "	H	"

## CISSUS $x = 12, 13, 14, 16$

<i>repens (glauca)</i>	24	Krishnaswamy <i>et al.</i> 1954	—	S.E. Asia
<i>javana (discolor)</i>	24	" "	—	"
<i>repanda (pallida)</i>	26	" "	—	Ceylon, Siam, E. Ind.
<i>heyneana</i>	28	" "	—	E. Indies
<i>gongyloides</i>	32	Langlet 1927b	H	Brazil, Peru
<i>quadrangularis</i>	c. 45	Ghimpu 1929b	VMVit	Asia, Trop. Africa

## VITIS $x = 19, 20$

<i>amurensis</i>	Amur Grape Vine	38	Nebel 1929	F	E. Asia
<i>arizonica</i>	Canyon G. V.	38	Christoff 1929	F	Ariz., Mexico
<i>berlandieri</i>	Winter G. V.	38	Sax 1929	F	Texas, N. Mexico
<i>bicolor</i>	Blue G. V.	38	" "	F	E. & C. U.S.A.
<i>californica</i>	Calif. G. V.	38	Kobel 1929a	F	California
<i>candicans</i>	Mustang G. V.	38	Sax 1929	F	N. America
<i>cinerea</i>	Sweet Winter G. V.	38	Kobel 1929a	F	E: N. America
<i>coignetiae</i>	Glory G. V.	38	Nebel 1929	H	Japan
<i>doniana</i>		38	" "	—	N. America
<i>labrusca</i>	Fox G. V.	38	" "	FO	E: N. America
<i>lincecumii</i>	Post-Oak G. V.	38	Christoff 1929	—	S.C: U.S.A.
<i>longii</i>	Bush G. V.	38	Sax 1929	—	"
<i>monticola</i>	Sweet Mtn. G. V.	38	Christoff 1929	F	Texas
<i>riparia</i>	Riverbank G. V.	38	" "	FO	E: N. America
<i>rubra</i>	Red G. V.	38	" "	—	C: U.S.A.
<i>rupestris</i>	Sand G. V.	38	" "	Fs	S.E. & C. U.S.A.
<i>treleasei</i>		38	Sax 1929	—	N. America
<i>vulpina</i>	Frost G. V.	38	Nebel 1929	Fs	"

*vinifera* Grape Vine 38, 57, 76 Olmo 1937 ABFO S.W. Asia (*cult*)

<i>rotundifolia</i>	Muscadine	40	Branas 1932	FO	S. & C. U.S.A.
<i>riparia</i> $\times$ <i>monticola</i>		40	de Lattin 1951	—	<i>exp.</i>
<i>vinifera</i> $\times$ <i>rotund.</i>		39	Patel & O. 1955	—	<i>exp.</i>

## AMPELOPSIS $x = 20$

<i>cordata</i>		40	Sax 1929	H	N. America
<i>heterophylla</i>		40	Mitsukuri & H. '51	H	E. Asia
<i>vitifolia</i>		40	Christoff 1929	—	Persia, Afghan.

## PARTHENOCISSUS $x = 20$

<i>quinquefolia</i>	Virginia Creeper	40	Sax 1929	H	E: N. America
<i>tricuspidata</i>	Boston Ivy	40	" "	H	China, Japan

## CAYRATIA (COLUMELLA) $x = ?$

<i>japonica</i>		c. 60	Mitsukuri & H. '51	H	E. Asia
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# 194 RUTACEAE

## SF1: AURANTIOIDEAE

<b>AEGLOPSIS</b> $x = 9$					
<i>chevalieri</i>		18	Longley 1925	—	Guinea
<b>AFRAEGLE</b> $x = 9$					
<i>gabonensis</i>		18	Krug 1943	—	Congo
<b>ATALANTIA</b> $x = 9$					
<i>citroides</i>		18	Krug 1943	HF's	Indo-China
<b>CLAUSENA (COOKIA)</b> $x = 9$					
<i>lansium</i> Wampee		18	Krug 1943	F	China
<b>FERONIA</b> $x = 9$					
<i>limonia</i> Wood Apple		18	Toxopeus 1933	FRew	Ind., Bur., Cey.
<b>MICROCITRUS (CITRUS)</b> $x = 9$					
<i>australasica</i>		18	Krug 1943	F	Australia
<b>MURRAYA</b> $x = 9$					
<i>exotica</i> Boxwood		18	Pathak <i>et al.</i> '49	HW	Polynesia As., Austr.
<i>koenigii</i> Curryleaf		18	EKJ*	Sp	E. Indies
<i>paniculata</i> Jasmine Orange		18	Toxopeus 1933	PSp	Tr. Asia, Austr
<b>CITRUS*</b> $x = 9$ (Apomixis)					
<i>aurantium</i> Seville Orange		18	Sugiura 1931	FFsP	Trop. Asia
<i>bergamia</i> Bergamot		18	Nakamura 1934	FP	"
<i>celebica</i>		18	Krug 1943	—	E. Indies
<i>hystrix</i> Sattora		18	" "	P	India, Malaya
<i>ichangensis</i>		18	" "	H	China, Assam
<i>limetta</i> Sweet Lime		18	Nakamura 1934	FsP	Trop. Asia
" <i>limonia</i> " Jap. Citron		18	" "	FP	"
<i>macroptera</i>		18	Krug 1943	—	N. Caled.
<i>medica</i> Citron		18	Longley 1925	FMPV	Trop. Asia
<i>medioglobosa</i>		18	Nakamura 1934	—	Japan, <i>cult</i>
<i>mitis</i> Calamondin		18	Longley 1925	F	<i>cult</i>
<i>nobilis</i> Tangerine, Mandarin O.		18	Nakamura 1934	FPVit	China, <i>cult</i>
" <i>obovata</i> "		18	" "	F	<i>cult</i>
<i>pyriformis</i> Ponderosa Lemon		18	" "	F	Java
<i>tachibana (leiocarpa)</i>		18	" "	F	Japan, Korea
<i>tamura</i>		18	" "	F	Japan
<i>webberi</i>		18	Krug 1943	—	Philip. Is.
25 other species		18	Nakamura 1934, 1942	—	E. Asia
<i>aurantifolia</i> Acid Lime, Tahiti Lime	{	18	Longley 1925	FP	Trop. Asia
		19-21, 27	Krug & B. 1943		
		27	Bacchi 1940		
<i>natsudaiddai</i>		18, 27, 36	Lapin 1937a	F	Japan
<i>paradisi</i> Grape Fruit		18, 27, 36	" "	F	E. Asia
<i>sinensis</i> Sweet O.	{	18, 27, 36	" "	FVit	China, <i>cult</i>
		45	Krug 1943		
<i>grandis</i> Pummelo		18, 36	Frost, Krug 1943	F	Java
<i>limon</i> Lemon		18, 36	Krug 1943	FVit	<i>cult</i>
<i>madurensis</i>		18, 36	Nakamura 1942	—	China, Japan

<b>CITRUS (cont.)</b>					
<i>maxima</i>	Shaddock	18, 36	Lapin 1937a	F	Trop. Asia
<i>microcarpa</i>	( <i>japonica</i> )	18, 36	Nakamura 1934	F	Japan
<i>reticulata</i>	Dancy Tang.	18, 36	Frost, Krug 1943	F	<i>cult</i>
<i>unshiu</i>	Satsuma O.	18, 36	Lapin 1937a	FP	Japan
<b>FORTUNELLA <math>x = 9</math></b>					
<i>crassifolia</i>	Cumquat	18	Longley 1925	F	China
<i>japonica</i>	Round C.	18	" "	F	Japan, China
<i>margarita</i>	Oval C.	18	Lapin 1937a	F	" "
<i>obovata</i>		18	Nakamura 1941	F	China
<i>hindsii</i>	Cumquat	18, 36	Longley 1925	F	
<b>PONCIRUS <math>x = 9</math></b>					
<i>trifoliata</i>	Trifoliolate O.	{ 18 18, 36	Longley 1925 Lapin 1937a	FP	Japan
<b>TRIPHASIA <math>x = 9</math></b>					
<i>trifolia</i>	Chinese Lime	{ 18 36	Longley 1925 Krug 1943	F	Trop. Asia
<b>AEGLE <math>x = 9</math></b>					
<i>marmelos</i>	Bael T.	36	EKJ*	DFM	India
<b>SF2: RUTOIDEAE</b>					
<b>BORONIA* <math>x = 7, 8, 9, 11</math></b>					
$x = 7$					
<i>megastigma</i>		14	Smith-White 1954b	H	W. Australia
<i>pulchella</i>		14		H	
$x = 8$					
<i>elator</i>		16		H	
<i>gracilipes</i>		16		H	
<i>fraseri</i>		32		H	N.S.W.
<i>ledifolia</i>		32			
<i>mollis</i>		32			
<i>triphylla</i>		32			
$x = 9$					
<i>barkeriana</i>		18			
<i>fastigiata</i>		18		H	W. Australia
<i>nematophylla</i>		18		—	
<i>parviflora</i>		18		—	N.S.W.
<i>purdieana</i>		18		—	W. Australia
<i>tenuis</i>		18		—	
<i>viminea</i> & 2 spp.		18		H	"
<i>crenulata</i>		18, 36		H	"
<i>crassifolia</i>		18, 36		—	"
<i>anemonifolia</i>		36		H	N.S.W.
<i>polygalifolia</i>		36		H	"
<i>ramosa</i>		36		—	W. Australia
<i>rigens</i>		36		—	N.S.W.
<i>coerulescens</i>		36, 72		—	S. Australia
$x = 11$					
<i>floribunda</i>		22			N.S.W.

<b>BORONIA (cont.)</b>					
<i>microphylla</i>	22	Smith-White 1954b	—	N.S.W.	
<i>pilosa</i>	22	" "	H		
<i>pinnata</i>	22	" "	H		
<i>serrulata</i>	22	" "	H		
<i>thujona</i>	22	" "	—		
<b>CHORILAENA x = 7</b>					
<i>hirsuta</i>	28	Smith-White 1954b	—	W. Australia	
<i>quercifolia</i>	28	" "	—	"	
<b>GELEZNOWIA x = 7</b>					
<i>verrucosa</i>	28	Smith-White 1954b	—	W. Australia	
<b>PHILOTHECA x = 7</b>					
<i>australis</i>	28	Smith-White 1954b	H	N.S.W.	
<i>miniata</i>	28	" "	—	W. Australia	
<i>reichenbachiana</i>	28	" "	—	N.S.W.	
<b>ASTEROLASIA x = 7, 13</b>					
<i>dielsii</i>	26	Smith-White 1954b	—	W. Australia	
<i>correifolia</i>	28	" "	—	N.S.W.	
<b>ERIOSTEMON x = 7, 17</b>					
<i>buxifolius</i>	28	Smith-White 1954b	H	N.S.W.	
<i>hispidulus</i>	28	" "	—	"	
<i>myoporoides</i>	28	" "	H	"	
<i>scaber</i>	28	" "	H	"	
<i>brevifolius</i>	56	" "	—	S. Australia	
<i>obovalis</i>	56	" "	H	N.S.W.	
<i>spicatus</i>	56	" "	—	W. Australia	
<i>lanceolatus</i>	34	" "	—	N.S.W.	
<b>CORREA x = 8</b>					
<i>alba</i>	32	Smith-White 1954b	H	N.S.W.	
<i>lawrenciana</i>	32	" "	H	"	
<i>speciosa</i>	32	" "	H	"	
<b>PHEBALIUM* x = 8</b>					
<i>dentatum</i> & 2 spp.	32	Smith-White 1954b	H	N.S.W.	
<i>ralstoni</i>	32	" "	—	"	
<i>squameum</i>	32	" "	—	Tasmania	
<i>squamulosum</i>	32	" "	H	N.S.W.	
<i>ozothamnoides</i>	64	" "	—	"	
<i>drummondii</i>	64	" "	—	W. Australia	
<i>microphyllum</i>	64	" "	—	"	
<b>BOENNINGHAUSENIA x = 9</b>					
<i>albiflora</i> China Rue	18	Sugiura 1936a	M	Himal., Japan	
<b>RTA x = 9</b>					
<i>patavina</i>	18	Negodi 1939	HM	S. Europe	
<i>chalepensis</i>	36	" "	H	Medit.	
<i>montana</i>	36	" "	—	Medit., Cauc.	
<i>graveolens</i> Rue	{ 72	" "	HMP	S. Europe	
	81	Revell 1945*			

**ZIERIA**  $x = 9$ 

<i>pilosa</i>	36	Smith-White 1954b	H	N.S.W.
<i>smithii</i>	36, 72	" "	H	"
<i>aspalathoides</i>	72	" "	—	"
<i>cytisoides</i>	72	" "	—	"
<i>laevigata</i>	72	" "	H	"

**DICTAMNUS**  $x = 9?$ 

<i>albus</i>	Dittany, Burning Bush	{ 30 Negodi 1939 36 Bowden 1945b	HP	S. Eur.—N. China
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**EVODIA**  $x = 9$ 

<i>micrococca</i>	36	Smith-White 1954b	—	N.S.W.
<i>dan.ellii</i>	72	Bowden 1945b	H	N. China, Korea
<i>fraxinifolia</i>	12	" "	H	Himal., Malaya
<i>hupehensis</i>	72	" "	H	C. China

**COLEONEMA**  $x = 9$ 

<i>pulchrum</i>	36	Smith-White 1954b	H	S. Africa
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**CALODENDRUM**  $x = 9$ 

<i>capense</i>	54	Smith-White 1954b	H	S. Africa
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**GEIGERA**  $x = 9$ 

<i>parviflora</i>	108	Smith-White 1954b	H	N.S.W.
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**DIPLOLAENA**  $x = 13$ 

<i>grandiflora</i>	26	Smith-White 1954b	H	W. Australia
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**CROWEA**  $x = 19$ 

<i>dentata</i>	38	Smith-White 1954b	—	W. Australia
<i>saligna</i>	38	" "	H	N.S.W.

**ZANTHOXYLUM (XANTHOXYLUM)**  $x = ?$ 

<i>americanum</i>	Prickly Ash	68	Walker 1942	W	E: N. America
<i>piperitum</i>	Jap. Pepper T.	70	Nakajima 1937b	OSp	N. China, Japan
<i>clava-herculis</i>		c. 72	Bowden 1940a	W	S.E. U.S.A.

**SF3 : TODDALIOIDEAE****ACRONYCHIA**  $x = 9$ 

<i>laevis</i>	36	Smith-White 1954b	H	E. Aust., N. Caled.
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**195 SIMARUBACEAE****QUASSIA**  $x = 9?$ 

<i>amara</i>	Surinam Quassia	36	EKJ*	M	Guiana
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**PICRASMA**  $x = ?$ 

<i>quassioides</i>		50	Nakajima 1942	M	Himalayas
<i>excelsa</i>	Jamaica Q.	c. 60	EKJ*	M	W. Indies

**AILANTHUS**  $x = ?$ 

<i>excelsa</i>		62	Pathak <i>et al.</i> 1949	—	India
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## 196 BURSERACEAE

### COMMIPHORA $x = 13$

<i>berryi</i>	Mullu kiluvai	26	Krishnaswamy & R.	H	Trop. Ind. & Afr.
			1949		

## 197 MELIACEAE

### MELIA $x = 14$

<i>azedarach</i>	Persian Lilac (of India)	28	Bowden 1945a	MOW	Himalayas
<i>azadirachta</i>	Margosa, Neem	28	Pathak <i>et al.</i> 1949	DMOW	India

### FLINDERSIA $x = 18$

<i>bourjotiana</i>		36	Smith-White 1954b	W	Australia
<i>oxleyana</i>	Yellow wood	36	" "	W	"
<i>pubescens</i>		36	" "	—	"
<i>schottiana</i>		36	" "	—	"
<i>australis</i>	Native Teak	108	" "	W	E. Australia

### SWIETENIA $x = ?$

<i>mahogoni</i>	Mahogany	46-48	Krishnaswamy & R.	W	C. America
			1949		

### CEDRELA $x = ?$

<i>odorata</i>	W.I. Cedar	50-52	Simmonds 1954	W	Trop. Amer., W.I
<i>toona</i>	Toona	56	Singh 1951	W	India, Burma

### DYSOXYLUM $x = ?$

<i>ramiflorum</i>		c. 72	Paetow 1931	W	Java
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## 198 SAPINDACEAE

### CARDIOSPERMUM $x = 11$

<i>halicacabum</i>	Heart Seed	22	Kadry 1951	H(V)	Tropics
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### KOELREUTERIA $x = 11$

<i>formosana</i>		22	Bowden 1945b	H	Formosa
<i>paniculata</i>	Golden Rain T.	{ 22 30?	" " Eichhorn & F. 1936	HNV	Ch., Kor., Japan

### LITCHI $x = ?$

<i>chinensis</i>	Lichi	{ 28 30	Chaudhuri 1940 EKJ*	F	China
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### EUPHORIA (NEPHELIUM) $x = 15$

<i>longana</i>	Longyen	30	Bhadhuri & B. 1949	FH	India
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### MELICocca $x = 16$

<i>bijuga</i>	Mamoncillo, Genip	32	Simmonds 1954	F	Trop. America
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### AESCULUS $x = 20$

<i>parviflora</i>	Common B.	40	Dobronz 1935	HN	S.E. U.S.A.
<i>flava (octandra)</i>	Yellow Buckeye	40	Upcott 1936b	HSh	E. U.S.A.
<i>hippocastanum</i>	Horse Chestnut	40	" "	Sh	Balkans
<i>pavia</i>	Red B.	40	" "	H	S.E. U.S.A.

# AESCULUS (cont.)

<i>plantierensis</i> ( <i>carnea</i> × <i>hippo</i> )	60	Upcott 1936b	HSh	<i>cult</i>
<i>carnea</i> ( <i>pavia</i> × <i>hippo</i> )	80	„ „	H	„

## 200 ACERACEAE

### ACER x = 13

<i>argutum</i>		26	Takizawa 1952	H	Japan
<i>campestre</i>	Hedge Maple	26	Foster 1933	HW	Eur., W. Asia
<i>circinatum</i>	Vine M.	26	„ „	HW	W: N. America
<i>cissifolium</i>		26	Takizawa 1952	H	Japan
<i>crataegifolium</i>		26	„ „	H	„
<i>diabolicum</i>		26	„ „	H	„
<i>ginnala</i>		26	„ „	H	Ch., Manch., Jap
<i>griseum</i>	Paper Bark M.	26	Foster 1933	HW	W. China
<i>japonicum</i>		26	Takizawa 1952	H	Japan
<i>mandschuricum</i>	Manch. M.	26	Foster 1933	HW	Manch., Korea
<i>miyabei</i>		26	„ „	HW	Japan
<i>mono</i> ( <i>pictum</i> )	Painted M.	26	Takizawa 1952	H	China—Manch.
<i>negundo</i>	Box Elder	26	Foster 1933	HW	E: N. America
<i>nikoense</i>	Nikko M.	26	„ „	H	Japan, C. China
<i>palmatum</i> ( <i>ornatum</i> )	Jap. M.	26	Takizawa 1952	HW	China, Korea
<i>pseudosieboldianum</i>		26	Foster 1933	HW	Manch., Korea
<i>rufinerve</i>	Red-vein M.	26	„ „	HW	Japan
<i>saccharum</i>	Sugar M.	26	Taylor 1920	SuW	E: N. America
<i>tschonoskii</i>		26	Foster 1933	HW	Japan
<i>platanoides</i>	Norway M.	26, 39	Meurman 1933	Su	Eur., S.W. Asia
<i>carpinifolium</i>	Hornbeam M.	c. 52	Taylor 1920	HW	Japan
<i>pseudoplatanus</i>	Sycamore	52	Foster 1933	(ASu)W	Eur., S.W. Asia
<i>saccharinum</i>	Silver M.	52	Taylor 1920	HSu	E: N. America
<i>rubrum</i>	Red M.	c. 78, c. 104	Duffield 1943	H	„ „

## 201 SABIACEAE

### SABIA x = 12

<i>japonica</i>	24	Sugiura 1936a, b	H	Japan
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### MELIOSOMA x = 16

<i>wightii</i>	32	Raju 1952	—	India
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## 204 STAPHYLEACEAE

### STAPHYLEA x = 13

<i>bumalda</i>	Bladder Nut	26	Foster 1933	H	Japan
<i>pinnata</i>	„ „	26	„ „	H	Eur., W. Asia
<i>colchica</i>	„ „	52	„ „	H	Caucasus
<i>trifolia</i>	„ „	78	„ „	H	N. America

## 205 ANACARDIACEAE

### PISTACIA x = 12, 14, 15

<i>lentiscus</i>	Mastic	24	Haran, Zohary 1953	MPRe	Medit.
<i>atlantica</i> v. <i>latifolia</i>		28	„ „ „	Re	S.W. As., N. Afr.

<b>PISTACIA (cont.)</b>						
<i>vera</i>	Pistachio Nut	30	Haran, Zohary 1953	N		Turkest., <i>cult</i>
<b>SCHINUS <math>x = 14</math></b>						
<i>molle</i>	Peruvian Mastic T.	28	Schnack & C. 1947	HRe		Trop. Amer.
<i>polygamus</i>		28		—		Argentina
<b>ASTRONIUM <math>x = 15</math></b>						
<i>urundeuva</i>		30	Covas & S. 1947	—		Brazil
<b>RHUS <math>x = 15</math></b>						
<i>succedanea</i>	Jap. Veget. Wax	30	Sugiura 1936b	Re		Jap., Ch., Himal.
<i>toxicodendron</i>	Poison Oak	30	Grimm 1912	M		N. America
<b>SPONDIAS <math>x = 16</math></b>						
<i>mangifera</i>	Hog Plum	32	Banerji 1936	FV		Trop. Asia
<i>purpurea (mombin)</i>	Spanish P.	32	Simmonds 1954	F		Trop. America
<b>MANGIFERA <math>x = 10</math> (Apomixis)</b>						
<i>caloneura</i>		40	Mukherjee 1950	—		Burma
<i>sylvatica</i>		40	" "	—		Himalayas
<i>indica</i>	Mango	40	" "	FVItW		India, Malaya
<b>SEMECARPUS <math>x = 15?</math></b>						
<i>anacardium</i>	Marking Nut T.	60	EKJ*	D		Tr. Asia & Austr.
<b>ANACARDIUM <math>x = ?</math></b>						
<i>occidentale</i>	Cashew Nut T.	42	EKJ*	AFNVit		Trop. America

## 207 JUGLANDACEAE

<b>CARYA <math>x = 16</math></b>						
<i>cordiformis</i>	Bitternut	32	Woodworth 1930c	H		N. America
<i>laneyi</i>		32	" "	W		"
<i>laciniosa</i>	King Nut	32	" "	N		"
<i>ovata</i>	Shagbark Hick.	32	" "	W		"
<i>alba</i>	Mokernut	64	" "	WN		"
<i>glabra</i>	Pignut	64	" "	DW		"
<i>ovalis</i>	False Shagbark	64	" "	W		"
<i>tomentosa</i>	Hickory	64	" "	N		"
<b>JUGLANS <math>x = 16, 17?</math></b>						
<i>cinerea</i>	Butternut	32	Woodworth 1930c	NWVit		E.N. America
<i>intermedia</i>		32	McKay & M. 1941	N		W. Asia, Himal.
<i>insularis</i>		32	Bowden 1945a	—		Cuba
<i>mandschurica</i>	Manch. W.	32	Woodworth 1930c	W		Manchuria
<i>nigra</i>	Black W.	32	" "	WNVit		N. America
<i>regia</i>	English W.	32	" "	NOWVit		S.E. Eur.—China
<i>rupestris</i>	Texas Black W.	32	" "	W		W: N. America
<i>sieboldiana</i>	Giant W.	32	" "	NW		Japan
<i>californica</i>	Cal. Black W.	34?	Babcock 1915	W		California
<i>notha</i>		32	Woodworth 1930c	HW		<i>cult</i>
<b>PTEROCARYA <math>x = 16</math></b>						
<i>fraxinifolia</i>		c. 32	Woodworth 1930c	HW		Cauc.—Persia
<i>stenoptera</i>		c. 32	" "	HW		China
<i>rehderiana</i> ( <i>fraxinifolia</i> $\times$ <i>sten</i> )		32	" "	HW		<i>cult</i>



## Group XII

### UMBELLIFLORAE

209-213

HST



*Silaum silaus*



## 209 CORNACEAE

### AUCUBA $x = 8$

<i>chinensis</i>	16	Kihara & Y. 1935	H	China
<i>japonica</i>	32	Meurman 1929a	H	Him.—Japan
	32+2B	Yamamoto 1937		

<i>dentata</i>	32	Meurman unp.	H	<i>cult</i>
<i>longifolia</i>	32	" "	H	"

### COROKIA\* $x = 9$

<i>cotoneaster</i> & 1 sp.	18	Hamel 1953	H	New Zealand
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### GRISELINIA $x = 9$

<i>littoralis</i>	36	Wanscher 1933a	H	New Zealand
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### MACROCARPIUM (CORNUS) $x = 9$

<i>officinale</i>	18	Sugiura 1936b	H	China, Japan
<i>mas</i> Cornelian Cherry	18, 27	D'Amato 1946	HW	Balk., S.W. Asia

### CORNUS\* $x = 10, 11$

<i>alternifolia</i> Pagoda Dogwood	20	Dermen 1932b	H	N. America
<i>controversa</i>	20	" "	H	Him.—Japan
<i>alba</i> Tartarian D.	22	" "	H	N. Asia
<i>amomum</i> Silky D. & 7 spp.	22	" "	H	N. America
<i>arnoldiana</i>	22	" "	H	<i>cult</i>
<i>bretschneideri</i>	22	" "	H	"
<i>coreana</i>	22	" "	H	Korea
<i>paucinervis</i>	22	" "	H	C. China
<i>sanguinea</i> Blood Twig D.	22	" "	HW	Eur., N.W. Asia

### CYNOXYLON (CORNUS) $x = 11$

<i>floridum</i> Flowering D.	22	Dermen 1932b	HMW	E: U.S.A.
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### DENDROBENTHAMIA (CORNUS) $x = 11$

<i>capitata</i>	22	Wanscher 1933b	H	Him., China
<i>japonica</i> ( <i>kousa</i> ) Kousa	22	Dermen 1932b	H	China, Japan

### CHAMAEPERICLYMENUM (CORNUS) $x = 11$

<i>succicum</i>	22	Wulff 1939b	H	Arctic
<i>canadense</i> Bunch Berry	44	Dermen 1932b	H	N.E. Asia, N. Amer.

### HELWINGIA $x = ?$

<i>japonica</i>	120	Nakajima 1944	H	Japan
( <i>rusciflora</i> )	c. 72, 144	Wanscher 1933a		

## 210 ALANGIACEAE

### ALANGIUM (MARLEA) $x = 8, 11$

<i>lamarckii</i>	16	Gopinath 1945		O.W. Tropics
<i>begonifolium</i>	22	Wanscher 1933a	H	India—Japan

## 211 NYSSACEAE

### DAVIDIA $x = ?$

<i>involucrata</i> Handkerchief T.	c. 40	Dermen 1932b	H	China
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NYSSA  $x = 11$

*sylvatica* Black Tupelo 44 Dermen 1932b H S.E: U.S.A.

## 212 ARALIACEAE

PANAX  $x = 11, 12$

<i>fruticosa</i>	Ginseng	{	22 Gopinath 1944	H	Trop. Asia
			24 Wanscher 1933a		
<i>japonicum</i>	Jap. G.		24 M. & S. 1935	HM	Japan
<i>ginseng</i>	Chinese G.		44 Sugiura 1936a	HM	Manch., Korea

FATSIA (TETRAPANAX)  $x = 12$

*japonica* Rice-paper Plant 24 Sugiura 1931 HT Japan, Formosa

ARALIA  $x = 12$

<i>filicifolia</i>		24 Wanscher 1933a	HM	Pacific Is.
<i>nudicaulis</i>	Virg. Sarsaparilla	24 Bowden 1945a	HM	N. America
<i>spinosa</i>		24 " "	—	"
<i>californica</i>		48 " "	—	California
<i>cachemirica</i>		48 Wanscher 1933a	HM	Himal.

HEDERA  $x = 12$

<i>australiana</i>		24 Gopinath 1944	—	Australia
<i>helix</i>	Ivy	48 Jacobsen 1954	HM	Eur., Asia Minor
<i>v. hibernica</i>		96 " "		Ireland
<i>canariensis</i>		96 " "	—	Medit., Canaries
<i>colchica</i>		192 " "	H	Cauc.—Persia

NOTHOPANAX  $x = ?$

sp. 40 Nishiyama & f

ACANTHOPANAX (KALOPANAX)  $x = ?$

<i>aculeatus</i>	c. 54	Wanscher 1933a	H	E. Asia
<i>sessiliflorus</i>	c. 54	" "	H	N. China
<i>leucorrhizus</i>	c. 127	" "	H	E. Asia

## 213 UMBELLIFERAE

Order of the Tribes with their Basic Numbers

I Ammieae: 6, 7, 8, 9, 10, 11, 12	VI Laserpitieae: 7, 8, 9, 11
II Scandiceae: 6, 7, 8, 9, 10, 11	VII Smyrnieae: 9, 11
III Saniculeae: 7, 8	VIII Coriandreae: 11
IV Hydrocotyleae: 8, 9, 10, 11	IX Peucedaneae: 6, 10, 11
V Dauceae: 8, 9, 10, 11	

### TRIBE I: AMMIEAE

PTYCHOTIS  $x = 6$

*ammoides* 12 Gardé & G. 1949 — Medit.

CICLOSPERMUM  $x = 7$

*ammi* 14 Gardé & G. 1951 — Medit.

# BUPLEURUM $x=7, 8$

<i>fruticosum</i>	Shrub Thorowax	14	Gardé & G. 1951	M?	Medit.
<i>paniculatum</i>		14	" 1949	—	W. Medit.
<i>falcatum</i>		28	Suzuka 1950	—	Eurasia
<i>aureum</i>		16	Håkansson 1953	—	W. Europe
<i>candollii</i>		16	Wanscher 1932	—	Himalayas
<i>gerardi</i>		16	Gardé & G. 1951	—	Eur., N. Africa
<i>longifolium</i>		16	Wanscher 1931	—	Europe
<i>rotundifolium</i>	Thorowax	{ 16	Tamamschjan 1933	Sp	"
		22?	Melderis 1930		
<i>tenuissimum</i>		16	Gardé & G. 1949	—	Portugal, Moroc.

# BERULA $x=9$

<i>erecta</i>		18	Scheerer 1940	—	N. Temp.
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# TRINIA $x=9$

<i>glauca</i>	Honewort	18	Gardé & G. 1949	—	W. Europe
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# CARUM $x=9, 10, 11$

<i>copticum</i>		18	Shah 1953	Sp	N. Afr., N. Asia
<i>roxburghianum</i>		18	Sharma & G. 1954	Sp	India
<i>carvi</i>	Caraway	20	Gardé & G. 1949	Sp	Eur., N. & S.W. A.
<i>verticillatum</i>		20	" "	—	Europe
<i>bulbocastanum</i>		22	Schulz-Gaebel 1930	—	Eur., N. Asia
<i>rigidulum</i>		22	" "	—	Italy

# PIMPINELLA $x=9, 10$

<i>major</i>		18	Håkansson 1953	—	Eur., Cauc.
<i>peregrina</i>		18	Schulz-Gaebel 1930	—	S. Eur., Asia M.
<i>rotundifolia</i>		18	Håkansson 1953	—	Caucasus
<i>tragium</i>		18	Gardé & G. 1949	—	S. Eur.—India
<i>villosa</i>		18	" "	—	W. Medit.

<i>saxifraga</i>	Burnet Saxifrage	18, 36	Håkansson 1953	M	Eur., N. Asia
<i>anisum</i>	Anise	{ 18	Schulz-Gaebel 1930	MSp	Greece, Egypt
		20	Tamamschjan 1933		
<i>aromatica</i>		20	" "	—	Caucasus
<i>adscendens</i>		22	Shah 1953	—	India

# SESELI\* $x=9, 10, 11$

<i>bocconi</i> & 4 spp.		18	Gardé & G. 1949	—	Sicily
<i>libanotis</i>		{ 18	" "	—	Eur., S.W. Asia
		22	Wanscher 1932		
<i>gummiferum</i>		20	Gardé & G. 1949	—	Asia Minor
<i>annuum</i>		22	Håkansson 1953	—	Eur., W. Asia
<i>montanum</i>		22	Favarger 1953	—	S. Europe
<i>tortuosum</i>		22	Gardé & G. 1949	—	S. Eur.—Cauc.

# PETROSELINUM $x=9, 11$

<i>segetum</i>	Corn Caraway	18	Gardé & G. 1951	—	Eur., Asia M., N. Afr.
<i>crispum</i>	Parsley	22	Rutland 1941	Sp	Eur., W. Asia, <i>cult</i>
<i>as sativum</i>		23	Tamamschjan 1933		

# AETHUSA $x=10$

<i>cynapium</i>	Fool's Parsley	20	Håkansson 1953	—	Eur., S.W. Asia
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<b>AMMI</b> $x = 10, 11$					
<i>visnaga</i>		{ 20	Gardé & G. 1951		S. America
<i>majus</i>		22	Covas & S. 1947		
		22	Gardé & G. 1951		Medit., Abyss.
<b>CRITHMUM</b> $x = 10, 11$					
<i>maritimum</i>	Samphire	{ 20	Gardé & G. 1951	Sp	Europe
		22	Wanscher 1932		
<b>SIUM</b> $x = 10, 11$					
<i>latifolium</i>	Water Parsnip	20	Håkansson 1953	(V)	Eur., N. Amer.
<i>sisarum</i>	Skirret	22	" "	R	W. Asia
<b>ACIPHYLLA</b> $x = 11$					
<i>squarrosa</i>		22	Wanscher 1933a	—	New Zealand
<i>traversii</i>		22	" "		
<b>ANETHUM (PEUCEDANUM)</b> $x = 11$					
<i>graveolens</i>	Dill	22	Tamamschjan 1933	Sp	Medit., S.W. Asi
<b>APIUM (HELOSCIADIUM)</b> $x = 11$					
<i>graveolens</i>	Celery	22	Shah 1953	SpV	Eur.—N. India
<i>inundatum</i>		22	Scheerer 1939	—	Europe
<i>nodiflorum</i>		22	Wulff 1939b	—	"
<i>prostratum</i>	Australian C.	22	Whitaker 1941	V	Australia
<i>prostratum</i> $\times$ <i>graveolens</i> (3x)		33	" "	—	exp.
<b>ATHAMANTHA</b> $x = 11$					
<i>matthioli</i>		22	Wanscher 1931		Medit.
<b>CICUTA</b> $x = 11$					
<i>virosa</i>	Cowbane	22 (44)	Melderis 1930		N. Eurasia
<b>CONOPODIUM</b> $x = 11$					
<i>capillifolium</i>		22	Gardé & G. 1949		Portugal
<b>CORTIA</b> $x = 11$					
<i>hookeri</i>		22	Wanscher 1933a		Himalayas
<b>CRYPTOTAENIA</b> $x = 11$					
<i>canadensis</i>		22	Kihara <i>et al.</i> 1931		N. America
<b>FALCARIA</b> $x = 11$					
<i>vulgaris</i>		22	L. & L. 1942		Eur., W. Asia
<b>FOENICULUM</b> $x = 11$					
<i>piperitum</i>		22	Gardé & G. 1949		S. Europe
<i>vulgare</i>	Fennel	22	" "	MSP	Medit.
<b>KUNDMANNIA</b> $x = 11$					
<i>sicula</i>		22	Gardé & G. 1949	—	Medit.
<b>LIGUSTICUM</b> $x = 11$					
<i>scoticum</i>	Scotch Lovage	22	Wanscher 1932	M	N. W. Europe
<i>japonicum</i>		22	M. & S. 1935	H	Japan
<i>mucronatum</i>		22	Håkansson 1953		Siberia

<b>MEUM</b> $x = 11$					
<i>athamanticum</i>	Spiguel	22	Håkansson 1953	—	Europe
<b>OENANTHE</b> $x = 10, 11$					
<i>benghalensis</i>		20	Sharma & G. 1954	—	India
<i>aquatica</i>		22	Wulff 1937a	M	Eur., N. Asia
<i>crocata</i>		22	Gardé & G. 1949	—	W. Europe
<i>fistulosa</i>	Water Dropwort	22	Wulff 1939a	M	Eur., S.W. Asia
<i>lachenalii</i>		22	" 1937a	M	Eur., Cauc., Alg.
<i>pimpinelloides</i>		22	Håkansson 1953	—	Eur., Asia M.
<b>RIDOLFIA</b> $x = 11$					
<i>segetum</i>		22	Gardé & G. 1951	—	Medit.
<b>SELINUM</b> $x = 11$					
<i>carvifolia</i>		22	Schulz-Gaebel 1930	—	Eur., W. Asia
<b>SILAUM</b> $x = 11$					
<i>silaus</i>	Pepper Saxifrage	22	Maude 1939	—	Eur., Sib.
<b>TROCHISCANTHES</b> $x = 11$					
<i>nodiflorus</i>		22	Wanscher 1931		S. Europe
<b>AEGOPODIUM</b> $x = 11$					
<i>podagraria</i>	Gout Weed	{ 22	Gardé & G. 1951	M	Eur., N. Asia
		44	Håkansson 1953		
<b>CNIDIUM</b> $x = 12$					
<i>ajanense</i>		24	M. & S. 1935	—	N. Asia
<b>TRIBE II: SCANDICEAE</b>					
<b>TORILIS</b> $x = 6, 8, 11$					
<i>neglecta</i>		12	Gardé & G. 1949	—	S. Europe
<i>japonica</i>	Hedge Parsley	16	Melderis 1930	—	N. Temp.
<i>nodosa</i>		22	Gardé & G. 1949	—	Eur., W. Asia
<b>CAUCALIS</b> $x = 6, 10$					
<i>leptophylla</i>		12	Wanscher 1932	—	Eur., Medit.
<i>lappula (daucoides)</i>		20	" "	—	Eurasia
<i>latifolia</i>	Bur Parsley	c. 32	" "	—	"
<b>PETAGNIA</b> $x = 7$					
<i>saniculifolia</i>		42	Wanscher 1933a	—	Sicily
<b>ANTHRISCUS</b> $x = 7, 8, 9$					
<i>tenerrimus</i>		14	Wanscher 1933a	—	Greece, Asia M.
<i>sylvestris</i>	Cow Parsley	{ 16	Wanscher 1931	—	Eur., N. Asia
		18	Tamamschjan 1933	—	
<i>fumarioides</i>		{ 16	Wanscher 1931	—	Europe
		18	Schulz-Gaebel 1930		
<i>cerefolium</i>	Chervil	18	Wanscher 1931	Sp	Eur., S.W. & N Asia
<i>neglecta</i>	Bur Chervil	18	Wanscher 1931	—	Eur., W. Asia

<b>SCANDIX* <math>x = 8</math></b>				
<i>pecten-veneris</i> Shepherd's Needle	16	Wanscher 1931	—	Eur., S.W. Asia
<i>pinnatifida</i> & 2 spp.	16	Gardé & G. 1949, '54	—	Medit., S.W. Asia
<i>macrorrhyncha</i>	32	„ 1954	—	Asia Minor
<b>ASTRODAUCUS <math>x = 10</math></b>				
<i>orientalis</i>	20	Wanscher 1933a	—	Cauc., Persia
<b>ORLAYA <math>x = 10</math></b>				
<i>grandiflora</i>	20	Reese 1952a	—	Eur., S.W. Asia
<b>CHAEROPHYLLUM <math>x = 11</math></b>				
<i>aromaticum</i>	22	Wanscher 1932	—	Europe
<i>aureum</i>	22	Håkansson 1953	—	Eur., Asia M.
<i>bulbosum</i> Chervil	22	„ „	R	„ „
<i>hirsutum</i>	22	Wanscher 1931	—	„ „
<i>temulum</i> Rough Chervil	22	Wulff 1939a	—	Eur., Cauc., N. Afr.
<b>MYRRHIS <math>x = 11</math></b>				
<i>odorata</i> Myrrh	22	Wanscher 1931	Sp	S. Eur., Cauc.
<b>OSMORHIZA <math>x = 11</math></b>				
<i>aristata</i>	22	Wanscher 1932	—	N. America
<i>longistylis</i>	22	„ „	—	„
<b>MOLOSPERMUM <math>x = 11</math></b>				
<i>peloponnesiacum</i>	44	Håkansson 1953	—	W. Medit.

### TRIBE III: SANICULEAE

<b>ASTRANTIA <math>x = 7</math></b>				
<i>helleborifolia</i>	14	Wanscher 1932	—	Caucasus
<i>minor</i>	14	Håkansson 1953	—	S. Europe
<i>major</i>	14	Wanscher 1932	H	Europe—Cauc
<i>v. biebersteinii</i>	28	Håkansson 1953		
<b>ERYNGIUM* <math>x = 7, 8</math></b>				
<i>amethystinum</i>	14	Tamamschjan 1933	H	Europe
<i>campestre</i> Eryngo	14	Håkansson 1953		
	28	Gardé & G. 1949,	M	Eur., C. Asia
	28	Reese 1953		
<i>alpinum</i> & 4 spp.	16	Wanscher '32, '33a	—	Europe
<i>dichotomum</i> & 4 spp.	16	Gardé & G. 1949, '51	—	Medit.
<i>maritimum</i> Sea Holly	16	„ „ 1951	HR	Eur., Asia M.
<i>pandaniifolium</i>	48	„ „ „	—	Brazil
<i>aquaticum</i> ( <i>yuccaeifolium</i> )	96	Bowden 1945b	—	E: U.S.A.
<b>HACQUETIA <math>x = 8</math></b>				
<i>epipactis</i>	16	Wanscher 1933a	H	Europe
<b>LAGOECIA <math>x = 8</math></b>				
<i>cuminoides</i>	16	Tamamschjan 1933	—	Medit.

<b>SANICULA *</b>	$x = 8$				
<i>europaea</i>	Sanicle	16	Wanscher 1931	M	Eur., N. Asia
<i>arctopoides</i>	& 12 spp.	16	Bell 1954		W: N. America
<i>crassicaulis</i>		32, 48, 64	" "		W: N. & S. Amer.

#### TRIBE IV: HYDROCOTYLEAE

<b>AZORELLA</b>	$x = 8$				
<i>pedunculata</i>		16	Wanscher 1932	—	S. America
<i>trifurcata</i>		16	" "	—	"
<b>BOWLESIA</b>	$x = 8$				
<i>tenera</i>		16	Håkansson 1953	—	Andes
<b>DRUSA</b>	$x = 8$				
<i>oppositifolia</i>		16	Wanscher 1933a	—	Canaries
<b>HYDROCOTYLE</b>	$x = 8, 9, 11$				
<i>asiatica</i>		18	Sharma & G. 1954	—	India
<i>moschata</i>		{ c. 36	Tamamschjan 1933	—	New Zealand
		48	Wanscher 1932	—	
<i>novae-zealandiae</i>		48	" 1933a	—	" "
<i>umbellata</i>		48	" 1932	—	O.W. Tropics
<i>vulgaris</i>	Pennywort	c. 96	Håkansson 1953	—	Eur., N. Afr.
<i>bonariensis</i>		22	Covas & S. 1946	—	Tropics
<b>ACTINOTUS</b>	$x = 10$				
<i>helianthi</i>	Flannel Fl.	20	Smith-White unpub.	H	Australia
<b>ASTERISCUM</b>	$x = 10$				
<i>glaucum</i>		20	Covas & S. 1946	—	Andes
<b>TRACHYMENE (DIDISCUS)</b>	$x = 11$				
<i>coerulea</i>	Blue Lace Fl.	22	Wanscher 1933a	H	Australia
<i>pilosa</i>		44			

#### TRIBE V: DAUCEAE

<b>DAUCUS</b>	$x = 8, 9, 10, 11$				
<i>pumilus</i>		16	Gardé & G. 1949	—	Medit.
<i>muricatus?</i>		16	Wanscher 1933a	—	"
<i>carota</i>	Carrot	{ 18	Helser & W. '48,	VVit	S.W. Asia, <i>cult</i>
		18	Gardé & G. 1951		
<i>gingidium (gummifer)</i>		18	Lindenbein 1932	—	Eur., N. Afr.
<i>maritimus</i>		18	Gardé & G. 1949	—	W. Europe
<i>polygamus</i>		18	" " "	—	Spain, Sicily
<i>platycarpus</i>		18	Tamamschjan 1933	—	Eur., Temp. Asia
<i>maximus</i>		{ 18	Lindenbein 1932	—	Medit., S.W. Asia
		22	Wanscher 1932	—	
<i>grandiflorus</i>		20	" 1933a	—	Algeria
<i>pulcherrimus</i>		20	" "	—	Cauc., Pers.
<i>crinitus</i>		22	Gardé & G. 1949	—	Portugal
<i>muricatus</i>		22	" " 1951	—	Medit.

# TRIBE VI: LASERPITIEAE

CUMINUM	x = 7				
<i>cuminum</i>	Cumin	14	Sharma & G. 1954	MSp	Medit.
SILER	x = 8, 9, 11				
<i>divaricatum</i>		16	Suzuka & K. 1949	—	Siberia
<i>trilobum</i>		{ 18	Håkansson 1953	—	Eur., Asia M.,
		22	Wanscher 1932		Cauc.
LASERPITUM	x = 11				
<i>halleri</i>		22	Favarger 1953	—	Alps
<i>latifolium</i>		22	Håkansson 1953	—	Europe
<i>prutenicum</i>		22	Gardé & G. 1949	—	„
MARGOTIA	x = 11				
<i>gummifera</i>		22	Gardé & G. 1949	—	Spain
THAPSIA	x = 11				
<i>decipiens</i>		22	Wanscher 1933a	—	W. Medit.
<i>garganica</i>		22	Gardé & G. 1949	—	Medit.

# TRIBE VII: SMYRNIEAE

NOTHOSMYRNIUM	x = 9				
<i>japonicum</i>		18	Suzuka & K. 1949		Japan
CONIUM	x = 11				
<i>maculatum</i>	Hemlock	22	Gardé & G. 1949	M	Eur., S.W. Asia
HIPPOMARATHRUM	x = 11				
<i>pterochloenum</i>		22	Gardé & G. 1949		Medit.
SMYRNIUM	x = 11				
<i>perfoliatum</i>		22	Wanscher 1932	M	S. Eur., Cauc.
<i>olusatrum</i>	Alexanders	22	Rutland 1941	V	Eur., Med.

# TRIBE VIII: CORIANDREAE

BIFORA	x = 11				
<i>radians</i>		22	Wanscher 1933a	—	S. Eur., Asia M.
CORIANDRUM	x = 11				
<i>sativum</i>	Coriander	22	Gardé & G. 1949	Sp	S. Eur., S.W. Asia

# TRIBE IX: PEUCEDANEAE

ANGELICA	x = 11				
<i>archangelica</i>	Angelica	22	Gardé & G. 1949	M	Eur., Sib., Himal.
<i>glabra</i>		22	Suzuka 1950	—	Japan
<i>pachycarpa</i>		22	Vaarama 1947a	—	Spain
<i>ursina</i>		22	„ „	—	Kamchatka
<i>pubescens</i>		22	Ogawa 1929	—	Japan
<i>sylvestris</i>		22	„ „	—	Eur., N. & S.W. Asia
sp.		66			

<b>FERULA</b> $x = 11$					
<i>assafoetida</i>	Asafoetida	22	Håkansson 1953	MSp	Pers., Afghan.
<i>communis</i>		22	Gardé & G. 1949	—	Medit.
<i>glauca</i>		22	" "	—	S. Europe
<i>longifolia</i>		22	" "	—	Russia
<b>HERACLEUM</b> $x = 11$					
<i>sphondylium</i>	Cow Parsnip	22	Maude 1939	—	Temp. O.W.
<b>LEVISTICUM</b> $x = 11$					
<i>officinalis</i>	Lovage	22	Melderis 1930	Ч	S. Europe
<b>LOPHOSCIADIUM</b> $x = 11$					
<i>meifolium</i>		22	Håkansson 1953	H	S. Europe
<b>OPOPANAX</b> $x = 11$					
<i>chironium</i>		22	Gardé & G. 1949	P	Medit.
<b>PASTINACA</b> $x = 11$					
<i>sativa</i>	Parsnip	22	Ogawa 1929	R	Eur., N. Amer.
<i>urens</i>		22	Vazart 1950	—	France
<b>TORDYLIUM</b> $x = 10, 11$					
<i>cordatum</i>		20	Gardé & G. 1954	—	Cyprus, Mesop.
<i>syriacum</i>		20	" "	—	Syria, Asia M.
<i>maximum</i>		22	Tamamschjan 1933	—	S. Eur., S.W. Asia
<b>PEUCEDANUM</b> $x = 6, 11$					
<i>angustifolium</i>		12	Gardé & G. 1954	—	Italy
<i>decursivum</i>		22	Ogawa 1929	M	Japan
<i>japonicum</i>		22	" "	—	"
<i>graveolens</i>	Dill	22	Schulz-Gaebele 1930	MSp	Medit.
<i>hispanicum</i>		22	Gardé & G. 1949	—	Spain
<i>oreoselinum</i>		22	Håkansson 1953	—	S. & C. Europe
<i>palustre</i>	Hog's Fennel	22	" "	M	Europe
<i>verticillare</i>		22	Gardé & G. 1949	—	S. Europe
<i>officinale</i>		c. 66	Reese 1952a	M	C. Eur., W. Asia
<b>CAPNOPHYLLUM</b> $x = 10$					
<i>peregrinum</i>		20	Gardé & G. 1954	—	Medit.

# TRIBE VI: LASERPITIEAE

CUMINUM	x = 7				
<i>cuminum</i>	Cumin	14	Sharma & G. 1954	MSp	Medit.
SILER	x = 8, 9, 11				
<i>divaricatum</i>		16	Suzuka & K. 1949	—	Siberia
<i>trilobum</i>		{ 18	Håkansson 1953	—	Eur., Asia M.,
		22	Wanscher 1932		Cauc.
LASERPITUM	x = 11				
<i>halleri</i>		22	Favarger 1953	—	Alps
<i>latifolium</i>		22	Håkansson 1953	—	Europe
<i>prutenicum</i>		22	Gardé & G. 1949	—	„
MARGOTIA	x = 11				
<i>gummifera</i>		22	Gardé & G. 1949	—	Spain
THAPSIA	x = 11				
<i>decipiens</i>		22	Wanscher 1933a	—	W. Medit.
<i>garganica</i>		22	Gardé & G. 1949	—	Medit.

# TRIBE VII: SMYRNEAE

NOTHOSMYRNIUM	x = 9				
<i>japonicum</i>		18	Suzuka & K. 1949	—	Japan
CONIUM	x = 11				
<i>maculatum</i>	Hemlock	22	Gardé & G. 1949	M	Eur., S.W. Asia
HIPPOMARATHRUM	x = 11				
<i>pterochloenum</i>		22	Gardé & G. 1949	—	Medit.
SMYRNIUM	x = 11				
<i>perfoliatum</i>		22	Wanscher 1932	M	S. Eur., Cauc.
<i>olusatrum</i>	Alexanders	22	Rutland 1941	V	Eur., Med.

# TRIBE VIII: CORIANDREAE

BIFORA	x = 11				
<i>radicans</i>		22	Wanscher 1933a	—	S. Eur., Asia M.
CORIANDRUM	x = 11				
<i>sativum</i>	Coriander	22	Gardé & G. 1949	Sp	S. Eur., S.W. Asia

# TRIBE IX: PEUCEDANEAE

ANGELICA	x = 11				
<i>archangelica</i>	Angelica	22	Gardé & G. 1949	M	Eur., Sib., Himal.
<i>glabra</i>		22	Suzuka 1950	—	Japan
<i>pachycarpa</i>		22	Vaarama 1947a	—	Spain
<i>ursina</i>		22	„ „	—	Kamchatka
<i>pubescens</i>		22	Ogawa 1929	—	Japan
<i>sylvestris</i>		22	„ „	—	Eur., N. & S.W. Asia
sp.		66	„ „		

<b>FERULA</b> $x = 11$					
<i>assafoetida</i>	Asafoetida	22	Håkansson 1953	MSp	Pers., Afghan.
<i>communis</i>		22	Gardé & G. 1949	—	Medit.
<i>glauca</i>		22	" "	—	S. Europe
<i>longifolia</i>		22	" "	—	Russia
<b>HERACLEUM</b> $x = 11$					
<i>sphondylium</i>	Cow Parsnip	22	Maude 1939	—	Temp. O.W.
<b>LEVISTICUM</b> $x = 11$					
<i>officinalis</i>	Lovage	22	Melderis 1930	Y	S. Europe
<b>LOPHOSCIADIUM</b> $x = 11$					
<i>meifolium</i>		22	Håkansson 1953	H	S. Europe
<b>OPOPANAX</b> $x = 11$					
<i>chironium</i>		22	Gardé & G. 1949	P	Medit.
<b>PASTINACA</b> $x = 11$					
<i>sativa</i>	Parsnip	22	Ogawa 1929	R	Eur., N. Amer.
<i>urens</i>		22	Vazart 1950	—	France
<b>TORDYLIUM</b> $x = 10, 11$					
<i>cordatum</i>		20	Gardé & G. 1954	—	Cyprus, Mesop.
<i>syriacum</i>		20	" "	—	Syria, Asia M.
<i>maximum</i>		22	Tamamschjan 1933	—	S. Eur., S.W. Asia
<b>PEUCEDANUM</b> $x = 6, 11$					
<i>angustifolium</i>		12	Gardé & G. 1954	—	Italy
<i>decursivum</i>		22	Ogawa 1929	M	Japan
<i>japonicum</i>		22	" "	—	"
<i>graveolens</i>	Dill	22	Schulz-Gaebel 1930	MSp	Medit.
<i>hispanicum</i>		22	Gardé & G. 1949	—	Spain
<i>oreoselinum</i>		22	Håkansson 1953	—	S. & C. Europe
<i>palustre</i>	Hog's Fennel	22	" "	M	Europe
<i>verticillare</i>		22	Gardé & G. 1949	—	S. Europe
<i>officinale</i>		c. 66	Reese 1952a	M	C. Eur., W. Asia
<b>CAPNOPHYLLUM</b> $x = 10$					
<i>peregrinum</i>		20	Gardé & G. 1954	—	Medit.

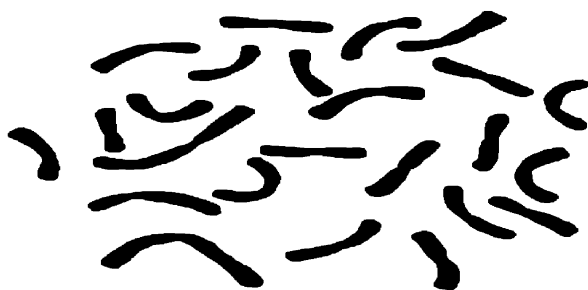


# Group XIII

## ERICALES

214–220

(H)S(T)



*Daboecia cantabrica*



## 214 CLETHRACEAE

<b>CLETHRA</b>	$x = 8$				
<i>arborea</i>		16	Hagerup 1928	—	Madeira
<i>alnifolia</i>	Sweet Pepperbush	32	" "	H	S: U.S.A.

## 215 ERICACEAE

<b>CALLUNA</b>	$x = 8$				
<i>vulgaris</i>	Heather, Ling	16	Hagerup 1928		FoBDH Eur., N. Amer.
<b>BRUCKENTHALIA</b>	$x = 9?$				
<i>spiculifolia</i>	Spike Heath	36	Callan 1941	H	E. Eur., A. Minor
<b>PERNETTYA</b>	$x = 11$				
<i>tasmanica</i>		22	Callan 1941	H	Tasmania
<i>buxifolia</i>		44	" "	H	Mexico
<i>ciliata (ciliaris)</i>		44	" "	H	"
<i>pentlandii</i>		44	" "	H	Andes
<i>prostrata</i>		44	" "	H	Magellan
<i>furens</i>		66	" "	HM	Chile
<i>mucronata</i>		66	" "	H	Magellan
<b>GAULTHETTYA</b>	$x = 11$				
<i>wisleyensis</i>		77	Callan 1941	H	<i>cult</i>
(G. shallon $\times$ P. mucronata)					
<b>GAULTHERIA</b>	$x = 11, 12, 13$				
<i>antipoda</i>		22	Callan 1941	H	Tasm., New Zeal.
<i>cuneata</i>		22	" "	H	W. China
<i>glomerata</i>		22	" "	H	S. America
<i>hispida</i>	Snowberry	22	" "	H	Austr., N.Z.
<i>cumingiana</i>		44	" "	H	Philip. Is.
<i>griffithiana</i>		44	" "	H	Himalaya
<i>shallon</i>	Salal	88	" "	HF	W: N. Amer.
<i>procumbens</i>	Checkerberry	24	Newcomer 1941	FH	N. America
<i>itoana</i>		26	Callan 1941	H	Japan
<b>KALMIA</b>	$x = 11, 12$				
<i>latifolia</i>	Calico Bush	24	Hagerup 1928	H	E: N. Amer.
<i>glauca</i>		48	" "	H	W: N. Amer.
<i>polifolia</i>	Bog K.	44	Callan 1941	H	"
<b>DABOECIA</b>	$x = 12$				
<i>cantabrica</i>	Irish Heath	24	Maude 1940	H	W. Europe
<b>ERICA</b>	$x = 12$				
<i>arborea</i>	Tree Heath	24	Hagerup 1928	W	Medit., Cauc.
<i>carnea</i>		24	" "	H	C. & S. Eur.
<i>cinerea</i>		24	" "	H	W. Europe
<i>curvirostris</i>		24	Callan 1941	—	S. Africa
<i>hiemalis</i>		24	Hagerup 1928	—	<i>cult</i>
<i>sessilifolia (spicata)</i>		24	Callan 1941	—	S. Africa
<i>tetralix</i>		24	Hagerup 1928	H	N. & W. Europe
<i>vagans</i>	Cornish H.	24	Maude 1939	H	W. Europe
<i>wilmoreana</i>		24	Callan 1941	H	<i>cult</i>

<b>LEIOPHYLLUM</b> $x = 12$					
<i>buxifolium</i> Sand Myrtle	24	Hagerup 1928	H	S.E.: U.S.A.	
<b>LEUCOTHOË</b> $x = 12$					
<i>populifolia</i> ( <i>acuminata</i> )	24	Callan 1941	H	S.E.: U.S.A.	
<b>LOISELEURIA</b> $x = 12$					
<i>procumbens</i> Apline Azalea	24	Hagerup 1928	H	North Reg.	
<b>LYONIA (PIERIS)</b> $x = 12$					
<i>lucida</i> Fetterbush	24	Callan 1941	H	S.E: U.S.A.	
<i>mariana</i> Staggerbush	24	„ „	H	E: U.S.A.	
<b>OXYDENDRON</b> $x = 12$					
<i>arboreum</i> Sourwood	24	Baldwin 1942a	W	E: U.S.A.	
<b>PIERIS</b> $x = 12$					
<i>japonica</i>	24	Callan 1941	H	Japan	
<b>PHYLLODOCE</b> $x = 12$					
<i>coerulea</i>	24	Wanscher 1933b	H	North Reg.	
<b>ANDROMEDA</b> $x = 12$					
<i>polifolia</i> Bog Rosemary	48	Callan 1941	H	North Reg.	
<b>ENKIANTHUS</b> $x = 12$					
<i>campanulatus</i>	60	Hagerup 1941a	H	Japan	
<b>ARBUTUS</b> $x = 13$					
<i>andrachne</i>	26	Hagerup 1928	FHW	E. Medit.	
<i>canariensis</i>	26	„ „	FH	Canary Is.	
<i>andrachnoides</i>	26	Callan 1941	H	<i>cult</i>	
<i>xalapensis</i>	26	„ „	H	Mexico	
<i>unedo</i> Strawberry Tree	26	Sealy & W. 1950	FH	Medit.	
<b>ARCTOUS (ARCTOSTAPHYLOS)</b> $x = 13$					
<i>alpina</i> Black Bearberry	26	L. & L. 1948	—	North Reg.	
<b>CASSIOPE</b> $x = 13$					
<i>tetragona</i>	26	L. & L. 1948	H	Circumpolar	
<i>hypnoides</i>	c. 48	Hagerup 1928	H	Arctic	
<b>CHIMAPHILA *</b> $x = 13$					
<i>umbellata</i> & 1 sp.	c. 26	Hagerup 1941a	H	Eurasia	
<b>MONESSES (PYROLA)</b> $x = 13$					
<i>uniflora</i> Shinleaf	26	Hagerup 1941a	H	North Reg.	
<b>ARCTOSTAPHYLOS</b> $x = 13$					
<i>bicolor</i>	26	Callan 1941	H	Calif.	
<i>pungens</i>	26	„ „	H	Calif., Mex.	
<i>uva-ursi</i>	52	Hagerup 1928	HM	North Temp.	
<b>LEDUM</b> $x = 13$					
<i>latifolium</i> Labrador Tea	26	Hagerup 1928	BHM	Arctic	
<i>columbianum</i>	26	Callan 1941	H	N. America	
<i>palustre</i> Crystal Tea	52	Hagerup 1941a	H	N. Eur., N. Asi	

**RHODODENDRON \*  $x = 13$  (374 species counted)**

**S. 1. GLABRATAE (AZALEA)**

**Series Azalea**

39 species	26	Janaki-Ammal <i>et al.</i>	H	North Temp.
		'50		
<i>calendulaceum</i>	52	"	H	N.E.: N. Amer.
<i>canadense</i>	52	"	H	"
3 Series: 3 spp.	26	"	H	Colo., E. Asia

**S. 2. NON-LEPIDOTAE**

**Series Fortunei**

15 species	26	"	H	S.W. China
<i>diaprepes</i>	26, 39	"	H	S.W. Yunnan, Bur.

14 Series: 134 spp.

26	"	H	S.E. Asia etc.
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**S. 3. LEPIDOTAE**

**Series Glaucum**

9 species	26	"	H	Sikkim, S.E. Tib.,
<i>pemakoense</i>	26, 52	"	H	N. Bur., Yunnan
<i>tsangpoense</i>	52	"	H	

**Series Lepidotum**

3 species	26	"	H	Himal., S. Tibet
<i>baileyi</i>	52	"	H	
<i>patulum</i>	52	"	H	

**Series Saluenense**

7 species	26	Janaki-Ammal <i>et al.</i>	H	N.E. Bur., S.E. Tibet, Yunnan
		1950		

<i>cosmetum</i>	26, 52	"	H
<i>riparium</i>	26, 52	"	H
<i>saluenense</i>	26, 52	"	H
<i>prostratum</i>	52	"	H

**Series Lapponicum**

17 species	26	"	H	Yunnan, Szechuan
<i>fastigiatum</i>	26, 52	"	H	
<i>intricatum</i>	26, 52	"	H	
<i>lapponicum</i>	26, 52	"	H	(Lapland)
<i>lysolepis</i>	26, 52	"	H	
<i>rupicola</i>	26, 52	"	H	
<i>idoneum</i>	26, 52	"	H	
<i>flavidum</i>	26, 52	"	H	
<i>russatum</i>	39, 52	"	H	
<i>capitatum</i>	52	"	H	
<i>dasyptalum</i>	52	"	H	
<i>edgarianum</i>	52	"	H	
<i>drumonium</i>	52	"	H	
<i>ramosissimum</i>	52	"	H	
<i>violaceum</i>	52	"	H	
<i>yungingense</i>	52	"	H	
<i>ravum</i>	52, 78	"	H	
<i>complexum</i>	78	"	H	
<i>cuneatum</i>	78	"	H	
<i>tapetiforme</i>	78	"	H	

**Series Triflorum**

8 species	26	"	H	Yunnan, Szechuan
<i>aechmophyllum</i>	52	"	H	
<i>ambiguum</i>	52	"	H	

# RHODODENDRON (cont.)

<i>amesiae</i>	52	Janaki-Ammal <i>et al.</i>	H	
	1950			
<i>augustinii</i>	52	" "	H	
<i>charianthum</i>	52	" "	H	
<i>chasmanthum</i>	52	" "	H	
<i>concinnum</i>	52	" "	H	
<i>exquisitum</i>	52	" "	H	
<i>pseudovanthinum</i>	52	" "	H	
<i>searsiae</i>	52	" "	H	
<i>zaleucum</i>	52	" "	H	
<i>artosquamatum</i>	78	" "	H	
<i>davidsonianum</i>	78	" "	H	
<i>oreotrepis</i>	78	" "	H	
<i>siderophyllum</i>	78	" "	H	
<i>timetum</i>	78	" "	H	
<i>xanthocodon</i>	78	" "	H	
<i>yunnanense</i>	78	" "	H	
Series Maddenii				Sikkim—W. Yun-
23 species	26	" "	H	nan & Burma
<i>crassum</i>	52, 78	" "	H	
<i>maddenii</i>	52, 78	" "	H	
<i>polyandrum</i>	78	" "	H	
<i>manipurense</i>	78, 156	" "	H	
Series Heliopsis				N. Bur.—Kansu
<i>aporinum</i>	52	Janaki-Ammal <i>et al.</i>	H	
	1950			
<i>brevistylum</i>	52	" "	H	
<i>desquamatum</i>	52	" "	H	
<i>rubiginosum</i>	52, 78	" "	H	
<i>heliopsis</i>	78	" "	H	
<i>pholidotum</i>	104	" "	H	
Series Cinnabarinum				Sikkim, Bhutan
<i>cinnabarinum</i>	78	" "	H	
<i>concatenans</i>	78	" "	H	
<i>keysii</i>	78	" "	H	
15 series: 47 spp.	26	" "	H	<div> 1 S.E. U.S.A.  1 N.E. Asia  44 Himalaya  1 Eur. Alps </div>
RAMISCHIA (PYROLA) $x = 19$				
<i>secunda</i>	38	Hagerup 1941a	—	N. Europe
PYROLA (PIROLA) $x_2 = 23$ (11 + 12)				
<i>grandiflora</i>	46	Hagerup 1928	—	North Temp.
<i>minor</i> Common Winter-green	46	" "	H	"
<i>rotundifolia</i>	46	" "	H	Eur., N. Amer.
<i>virens (chlorantha)</i>	46	" 1941a	H	N. America
<i>media</i>	92	" "	H	Europe

## 216 VACCINIACEAE

### GAYLUSSACIA $x = 12$

<i>baccata</i> (resinosa)	Huckleberry	24	Newcomer 1941	F	N. America
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# **PENTAPTERYGIUM** $x = 12$

*serpens* 24 Callan 1941 H Himalayas

# **POLYCODIUM** $x = 12$

*stamineum* Deerberry 24 Longley 1927b F N: U.S.A.

# **OXYCOCCUS (VACCINIUM)** $x = 12$

*macrocarpus* Cranberry 24 Darrow *et al.* 1944 F E: N. America

*microcarpus* 24 " " F North Reg.

*quadripetalus* Cranberry 48 " " F "

(*palustris*)

*as ovalifolius* 48 " " F

*gigas* 72 Hagerup 1940 — N.W. Europe

# **VACCINIUM** $x = 12$

*atrococcum* 24 Darrow *et al.* 1944 FH E: U.S.A.

*angustifolium* Sugarberry 24 " " F N.E.: N. Amer.

*caesariense* 24 " " F E: U.S.A.

*darrowi* 24 " " F S.E: U.S.A.

*elliottii* Mayberry 24 " " F "

*crassifolium* Creeping Blue- 24 " " F "

berry

*myrtilloides* Canda. Bl. 24 " " F N. America

*myrtilus* Whortleberry 24 Rutland 1941 F North Temp.

*ovatum* Calif. Bl. 24 Darrow *et al.* 1944 F W: N. America

*parvifolium* 24 " " F N.E: N. Amer.

*pallidum* 24 " " F E: U.S.A.

*tenellum* 24 " " F S.E: U.S.A.

*vacillans* 24 " " F U.S.A.

*vitis-idaea* Red Whortle- 24 Newcomer 1941 F Arctic, Subarctic

berry

*uliginosum* Moorberry, ' 24, 48 Hagerup 1933 F North Temp.

Bog Bilberry

*australe* 48 Darrow *et al.* 1944 F E: U.S.A.

*arctostaphylos* Broussa T. 48 " " B Caucasus

*brittonii* 48 " " F N.E.: N. Amer.

*corymbosum* Highbush Bl. 48 " " F E: N. America

*hirsutum* Hairy Bl. 48 " " F E: U.S.A.

*lamarckii* 48 " " F "

*myrsinites* Myrtle Bl. 48 " " FH S.E: U.S.A.

*simulatum* 48 " " F E: U.S.A.

*tallapusae* (*alto-montanum*) 48 " " F E: N. America

*virgatum* 48 " " F E: U.S.A.

*amoenum* 72 " " F "

*ashei* Rabbiteye Bl. 72 " " F "

*constablaei* 72 " " F S: U.S.A.

## **217 EPACRIDACEAE**

### **TRIBE I: STYPHELIEAE**

#### **STYPHELIA** \* $x = 4$

*longiflora* & 4 spp. 8 Smith-White 1948b H E. Australia

*tenuiflora* 8 " unp. — W. "

**LEUCOPOGON \*  $x = 4, 6, 11$**

(i) <i>fraseri</i>	& 11 spp.	8	Smith-White '48b & unp. (1955)	H	Aust., N.Z.
<i>juniperinus</i>	(3x)	12	" "	H	E. Australia
<i>biflorus</i>		16	" unp.	—	"
<i>ericoides</i>	& 5 spp.	12	" '48b & unp.	H	Australia
(ii) <i>richei</i>	& 2 spp.	12	" "	H	W. Australia
<i>amplexicaulis</i>		24	" "	H	N.S.W.
<i>australis</i>		24	" unp.	H	W. Australia
<i>lanceolatus</i>		48	" '48b	H	E. "
<i>revolutus</i>	22 + 0 - 3B		" unp.	—	W. "
<i>glabellus</i>	& 3 spp.	22	unp.	—	W.
<i>oldfieldii</i>	22 + 0 - 2B, c. 66				
<i>cuculatus</i>	c. 44				

**ASTROLOMA \*  $x = 4, 7$**

<i>ciliatum</i>	& 8 spp.	8	Smith-White unp.	—	W. Australia
<i>microdonta</i>		16	" "	—	" "
<i>humifusum</i>		24	" '48b	H	Aust., Tasm.
<i>stomarrhena</i>		32	" unp.	—	W. Australia
<i>conostephioides</i>		14	" "	—	S. "
<i>pinifolium</i>		14	" '48b	H	E. "

**LISSANTHE  $x = 7$**

<i>sapida</i>		14	Smith-White '48b	H	E. Australia
<i>strigosa</i>		14	" "	H	"
<i>montana</i>	28, 42		" unp.	—	"

**BRACHYLOMA  $x = 7, 9$**

<i>preissii</i>	14 + 0 - 1B		Smith-White unp.	—	W. Australia
<i>daphnoides</i>		18	" '48b	H	E. "
<i>scortechinii</i>		18	" unp.	—	" "

**MELICHRUS  $x = 8$**

<i>rotatus</i>		16	Smith-White '48b	H	E. Australia
<i>urceolatus</i>		16	" "	H	" "

**ACROTRICHE  $x = 9$**

<i>divaricata</i>		18	Smith-White '48b	H	E. Australia
<i>fasciculiflora</i>		18	" unp.	—	S. "
<i>ovalifolia</i>		18	" "	H	W. "
<i>serrulata</i>		18	" '48b	—	E. "

**TROCHOCARPA  $x = 10$**

<i>laurina</i>		20	Smith-White '48b	—	E. Australia
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**MONOTOCA  $x = 12$**

<i>elliptica</i>		24	Smith-White '48b	H	E. Australia
<i>scoparia</i>		24	" "	H	"

**TRIBE II: EPACRIDEAE**

**SPHENOTOMA  $x = 6, 7$**

<i>dracophylloides</i>		12	Smith-White unp.	—	W. Australia
<i>drummondii</i>		14	" "	—	"

SPRENGELIA	$x = 6$				
<i>incarnata</i>		24	Smith-White '48b	H	E. Aust., Tasm
ANDERSONIA	$x_2 = 13 (6 + 7)$				
<i>coerulea</i>		26	Smith-White unp.	H	W. Australia
<i>sprengelioides</i>		26	„ „	H	„
COSMELIA	$x_2 = 13$				
<i>rubra</i>		26	Smith-White unp.	H	W. Australia
DRACOPHYLLUM	$x_2 = 13$				
<i>secundum</i>		26	Smith-White '48b	H	E. Australia
LYSINEMA	$x = 6$				
<i>ciliatum</i>		24	Smith-White unp.	H	W. Australia
<i>conspicuum</i>		24	„ „	H	„
RICHEA *	$x_2 = 13$				
<i>gunnii</i>		26	Smith-White unp.	—	E. Australia
<i>scoparia</i>	& 3 spp.	26	„ „	H	Tasmania
WOOLLSIA	$x_2 = 13$				
<i>pungens</i>		26	Smith-White '48b	H	E. Australia
EPACRIS *	$x_2 = 13$				
<i>longiflora</i>	& 8 spp.	26	Smith-White '48b & unp.	H	E. Australia
<i>serpyllifolia</i>		26, 52	„ unp.	H	N.S.W., Tasm.

## 218 MONOTROPACEAE

<b>MONOTROPA</b> $x = 8$				
<i>hypophegea</i>	16	L. & L. 1944b	—	North Temp.
<i>hypopithys</i> Y. Bird's Nest	48	„	—	

## 219 DIAPENSIACEAE

<b>DIAPENSIA</b> $x = 6$				
<i>lapponica</i>	12	Hagerup 1928	H	North Temp.
<i>as obovata</i>	12	Sugiura 1937b		
<b>PYXIDANTHERA</b> $x = 6$				
<i>barbulata</i>	12	Baldwin 1939	H	E: N. America
<b>SHORTIA</b> $x = 6$				
<i>galacifolia</i>	12	Baldwin 1939	H	S.E: U.S.A.
<b>SCHIZOCODON</b> $x = 6$				
<i>soldanelloides</i>	12	Baldwin 1939	H	Japan
<b>GALAX</b> $x = 6$				
<i>aphylla</i>	12, 24	Baldwin 1941a	H	E: N. America



## Group XIV

### EBENALES

221, 222

ST

### MYRSINALES

223

ST

### STYRACALES

224-227

ST

### LOGANIALES

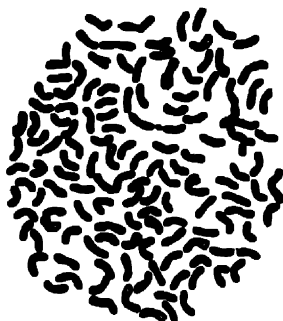
228, 229

ST

### APOCYNALES

230, 231

HST



*Fraxinus chinensis*



## 221 EBENACEAE

### DIOSPYROS $x = 15$

<i>discolor</i>	Velvet Apple	30	Namikawa & H. 1928	F	Philippines
<i>embryopteris</i>	Gaub	30	Pathak <i>et al.</i> 1949	F	India, Malaya
<i>lotus</i>	Date Plum, Lotus	30	Namikawa & H. 1928	F	Temp. Asia
<i>texana</i>	Black Pers.	30	Baldwin & C. 1941		Mexico
<i>virginiana</i>	Persimmon	60, 90	" "	F	N. America
<i>kaki</i>	Japanese Pers.	90	Namikawa & H. 1928	F	Ind.—Japan

## 222 SAPOTACEAE

### BUMELIA $x = 12$

<i>lanuginosa</i>	Chittamwood	24	Brown & C. 1940	H	S.E. U.S.A.
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### MADHUCA (BASSIA) $x = 12$

<i>latifolia</i>	Mahwah	24	Singh 1951	AOW	India
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### PALAEQUIM $x = 12$

<i>gutta</i>	Gutta-percha	24	EKJ*	Ru	India, Malaya
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### CHRYSOPHYLLUM $x = 12, 13$

<i>cainito</i>	Star Apple	24	Krishnaswamy & R. 1949	F	W. Ind., Trop. Amer.
<i>oliviforme</i>	Satin Leaf	26	Tjio 1948		
		52	" "	H	Fla., Trop. Amer.

### ACHRAS $x = 13$

<i>zapota</i>	Sapodilla	26	EKJ*	RuFW	W. Indies, C. Amer.
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## 223 MYRSINACEAE

### ARDISIA (ICACOREA) $x = 12, 13$

<i>crispa (crenata)</i>		24	La Cour 1945*	H	China, Malaya
		46	Sugiura 1936b		

## 224 STYRACACEAE

### STYRAX $x = 8$

<i>obassia</i>	Fragrant Styra	16	Manshard 1936	HM	Japan
<i>japonica</i>		40	" "	M	

### HALESIA $x = 12$

<i>diptera</i>		24	Simonet & M. 1932	—	S.E. U.S.A.
<i>carolina</i>	Wild Olive,	24	Manshard 1936	FH	
<i>(tetraptera)</i>	Snowdrop T.				

### PTEROSTYRAX $x = 12$

<i>corymbosa</i>		24	Manshard 1936	HM	Japan
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## 228 LOGANIACEAE

### FAGRAEA $x = 6$

<i>fragrans</i>		12	Mohrbuter 1936	—	Burma, Malaya
<i>litoralis</i>		12	" "	—	Java

<b>DESFONTAINIA</b> $x = 7$				
<i>spinosa</i>	14	Moore 1947	H	Chile, Peru
<b>GELSEMIUM</b> $x = 8$				
<i>sempervirens</i> False Jasmine	16	Moore 1947	HM	S.E: N. Amer.
<b>POLYPREMUM</b> $x = 11$				
<i>procumbens</i>	22	Moore 1947	—	S.E: N. Amer.
<b>STRYCHNOS</b> $x = 12$				
<i>laurina</i>	24	Mohrbutter 1936	M	E. Ind., Malaya
<i>nux-vomica</i> Nux-vomica	24	EKJ*	M	India, Burma
<i>sansibariensis</i> Zanz. Poison Nut	24	Mohrbutter 1936	M	Trop. Africa
<b>SPIGELIA</b> $x = (12) 24$				
<i>marilandica</i> Indian Pink Root	48	Moore 1947	H	S.E: N. Amer.
<b>CHILIANTHUS</b> $x_2 = 19 (7 + 12)$				
<i>oleaceus</i>	38	Moore 1947	H	S. Africa
<b>NICODEMIA</b> $x_2 = 19 (7 + 12)$				
<i>madagascariensis</i>	38	Moore 1947	—	Mascarene Is.
<b>BUDDLEIA</b> $x_2 = 19 (7 + 12)$				
<i>alternifolia</i>	38	Moore 1947	H	Kansu
<i>asiatica</i>	38	"	H	Trop. Asia, Mal.
<i>brasiliensis</i>	38	"	H	Brazil
<i>globosa</i> Panil	38	"	H	Chile, Peru
<i>japonica</i>	38	"	H	Japan
<i>lindleyana</i>	38	"	H	China
<i>salviifolia</i>	38	"	H	S. Africa
<i>scordoides</i>	38	"	—	Texas, Mexico
<i>tibetica</i> v. <i>farreri</i>	38	"	H	Kansu
<i>americana</i>	76	"	—	Mexico, C. Amer
<i>davidii</i> Summer Lilac	76	"	H	C. China, Tibet
(17 garden forms)	76	"	H	<i>cult</i>
<i>fallowiana</i>	76	"	H	Yunnan
<i>albiflora</i>	c. 114	"	H	Hupeh, Shensi
<i>forrestii</i>	c. 114	"	H	Yunnan
<i>limitanea</i>	c. 114	"	—	China, Burma
<i>nivea</i>	c. 114	"	H	Szechuan
<i>stenostachya</i>	c. 114	"	H	"
<i>colvillei</i>	c. 300	"	H	Himalayas

## 229 OLEACEAE

<b>MENODORA</b> $x = 11$				
<i>longiflora</i>	22	Taylor 1945		Texas
<i>scoparia</i>	22	Bowden 1945b		W: N. Amer.
<i>scabra</i>	44	Taylor 1945		New Mexico
<b>JASMINUM</b> $x = (12), 13$				
<i>mesneyi</i>	{	Bowden 1945b Taylor 1945	H	China

# JASMINUM (cont.)

<i>affine</i>		26	Bowden 1940a	P	Malaya
<i>auriculatum</i>		26	Krishnaswamy & R. 1948a	P	India, Ceylon
<i>beesianum</i>		26	Bowden 1945b	H	W. China
<i>calophyllum</i>		26	Krishnaswamy & R. 1949	P	India
<i>flexile</i>		26, 52	Raman 1955	P	"
<i>floridum</i>		26	Bowden 1940a	—	China
<i>fruticans</i>		26	Sax & A. 1932	—	Med., S.W. Asia
<i>gracillimum</i>		26	Taylor 1945	H	N. Borneo
<i>humile</i>	Italian Jasmine	26	Bowden 1940a	P	Afghan., Persia
<i>malabaricum</i>		26	Krishnaswamy & R. 1949	—	India
<i>odoratissimum</i>		26	Bowden 1945b	H	Madeira
<i>officinale</i>	White J. (grandiflorum)	26	Krishnaswamy & R. 1948a	HP	Persia—China
<i>parkeri</i>		26	Bowden 1945b	H	Himalayas
<i>pubigerum</i>		26	Taylor 1945	H	"
<i>rigidum</i>		26	Krishnaswamy & R. 1949	H	India
<i>simplicifolium</i> (lucidum)		26	Taylor 1945	—	Aust., Pacific
<i>tortuosum</i>		26	" "	—	S. Africa
<i>wallichianum</i>		26	Bowden 1940a	P	Nepal
<i>multiflorum</i> (pubescens)		26, 39	Dutt 1952b	H	India, China
<i>nitidum</i>		26, 39	Taylor 1945	H	S. Pacific
<i>sambac</i>	Mohle, Arabian J. {	26, 39	Bowden 1945b		
		26, 39	Krishnaswamy & R. '48a	HP	Trop. Asia
		39	Tjio '48, Taylor '45		
<i>primulinum</i> (3x)		39	Krishnaswamy & R. '48a	H	China, cult
<i>angustifolium</i>		52	" "	'49 —	India
<i>dichotomum</i>	Gold Coast J.	52	Taylor 1945	—	Trop. W. Africa
<i>nudiflorum</i>	Winter J.	52	Bowden 1940a	HP	China
<i>calophyllum</i> as <i>calcyphytum</i> ?		52	Dutt 1952b		

# FONTANESIA x = 13

<i>fortunei</i>		26	Taylor 1945	H	China
<i>phillyraeoides</i>		26	"	H	Sicily, A. Minor Syria

# ABELIOPHYLLUM x = 14

<i>distichum</i>		28	Taylor 1945	H	Korea
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# FORSYTHIA x = 14

<i>europaea</i>		28	Sax & A. 1932	H	Albania
<i>ovata</i>		28	" "	H	Korea
<i>suspensa</i>		28	" "	H	China
<i>viridissima</i>		28	" "	H	"

# CHIONANTHUS x = 23

<i>virginicus</i>	Fringe Tree	46	Sax & A. 1932	H	E: U.S.A.
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# FORESTIERA x = 23

<i>acuminata</i>		46	Sax & A. 1932	H	Texas
<i>neo-mexicana</i>		46	Taylor 1945	H	S.W: U.S.A.

# FRAXINUS x = 23

<i>angustifolia</i>		46	Taylor 1945	H	S. Eur., N. Afr.
<i>berlanderiana</i>		46	" "	H	Texas, Mex.
<i>biltmoreana</i>		46	" "	H	E: U.S.A.
<i>bungeana</i>		46	" "	H	N. China
<i>excelsior</i>	European Ash	46	Sax & A. 1932	VW	Eur., Asia Minor
<i>floribunda</i>	Himalaya A.	46	Bowden 1940a	W	Himalayas
<i>griffithii</i>		46	Taylor 1945	—	China, Philip., Malaya
<i>holotricha</i>		46	" "	H	E. Balkans
<i>oregona</i>	Oregon Ash	46	Sax & A. 1932	W	N.W: U.S.A.
<i>ornus</i>	Manna Ash	46	Taylor 1945	HM	Medit., A. Minor
<i>pennsylvanica</i>	Red Ash	46	Sax & A. 1932	W	E: N. America
<i>sogdiana</i>		46	Taylor 1945	H	Turkestan
<i>xanthoxyloides</i>		46	" "	H	Himal., Afghan
<i>velutina</i>		46, 92	" "	H	S.W: U.S.A.
<i>americana</i>	White Ash	46, 92, 138	Wright 1944	HW	E: N. America
<i>chinensis</i>	Chinese Ash	138	Taylor 1945	Fo <sub>1</sub> W	E. Asia

# LIGUSTRUM x = 23

<i>acuminatum</i>		46	Taylor 1945	H	Japan
<i>acutissimum</i>		46	" "	—	C. China
<i>amurense</i>		46	Sax & A. 1932	H	N. China
<i>delavayanum</i>		46	Taylor 1945	H	China
<i>ibota</i>		46	" "	H	China, Japan
<i>insulare</i>		46	" "	H	(unknown)
<i>japonicum</i>		46	" "	H	Japan, Korea
<i>lucidum</i>	Glossy Privet	46	" "	Fo <sub>1</sub> H	China—Japan
<i>obtusifolium</i>		46	" "	H	Japan
<i>quihoui</i>		46	" "	H	China
<i>vulgare</i>	Common Privet	46	" "	H	Eur., N. Africa
<i>yezoense</i>		46	M. & S. 1935	H	Japan

# OLEA x = 23

<i>europaea</i>	Olive	46	Breviglieri & B. 1955	FOW	Med., S.W: Asia
<i>laurifolia</i>	Bl. Ironwood	c. 48	Andersson 1931	W	S. Africa

# OSMANTHUS x = 23

<i>armatus</i>		46	Taylor 1945	H	China
<i>fragrans</i>		46	" "	H	Himal.—Japan
<i>ilicifolius</i>		46	" "	H	Japan
<i>americanus</i>	Devil Wood	138	" "	H	S.W: U.S.A.

# OSMAREA x = 23

<i>burkwoodii</i>	( <i>Siphonosmanthus</i>	46	Taylor 1945	H	<i>cult</i>
<i>delayavi</i>	× <i>Phillyrea decora</i> )				

# PHILLYREA x = 23

<i>decora</i>		46	Taylor 1945	H	W. Asia
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# SYRINGA x = 22, 23, 24

<i>emodi</i>	Himalayan Lilac	44	Tischler 1930	H	Himalayas
<i>persica</i>	Persian L.	44	Sax & A. 1932	H	Pers.—N.W: Ch.
<i>amurensis</i>	Amur L.	46	" "	H	W. China, Manch
<i>oblata</i>		46	Taylor 1945	H	N. China
<i>potanini</i>		46	" "	H	W. China

# SYRINGA (cont.)

<i>reflexa</i>		46	Taylor 1945	H	C. China
<i>sweginzowii</i>		46	" "	H	N.W. China
<i>velutina</i>	Manchurian L.	46	Sax & A. 1932	H	N. China, Korea
<i>wolffi</i>		46	Sax 1930b	H	Manch., Korea
<i>josikaea</i>	Hungarian L.	46-48	Sax & A. 1932	H	Hungary, Galicia
<i>komarovii</i>		46-48	" "	H	W. China
<i>meyeri</i>		46-48	" "	H	N. China
<i>tomentella</i>		46-48	" "	H	W. China
<i>villosa</i>	Late L.	46-48	" "	H	China
<i>vulgaris</i>	Common L.	46, 47, 48	Taylor 1945	HP	S.E.: Eur., <i>cult</i>
<i>microphylla</i>		48	" "	H	N. China
<i>pinnatifolia</i>	Pinnate L.	48	Sax & A. 1932	H	W. China
<i>pubescens</i>	Hairy L.	48	" "	H	N. China
<i>yunnanensis</i>		48	Sax 1930b	H	W. China

## 230 APOCYNACEAE

### LOCHNERA $x = 8$

<i>rosea</i>		16	Sugiura 1936b	M	Tropics
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### ALLAMANDA $x = 9$

<i>cathartica</i> v. <i>grandiflora</i>		18	Pathak <i>et al.</i> 1949	H	Guiana
<i>williamsii</i>		18	Sugiura 1936a	H	<i>cult</i>

### THEVETIA $x = 9, 10$

<i>peruviana</i>	Yellow	{	18	Pathak <i>et al.</i> 1949	HM	Trop. Amer.
( <i>nereifolia</i> )	Oleander		20	Hardas & J. 1954		

### PLUMERIA $x = (9), 18$

<i>alba</i>	White Fr.	36	Singh 1951	H	W. Indies
<i>rubra</i>	Frangipani	36	" "	H	Mex.—Ecuador
v. <i>acutifolia</i>	Pagoda T.	36	" "	HM	Mexico

### STROPHANTHUS\* $x = 10$

<i>arnoldianus</i>		20	Witkus 1951	H	Congo
<i>grandiflorus</i>		20	" "	H	Trop. S. Africa
<i>gratus</i>		20	" "	H	W. Africa
<i>hispidus</i>		{	20	" "	HM
			20	Delay 1951	
<i>kombe</i>		20	Witkus 1951	M	
<i>preussi</i>		20	" "	H	
<i>sarmentosus</i>		{	20	" "	H
			18	Snoad 1952	
<i>speciosus</i>	& 9 spp.	20	Witkus 1951	H	Trop. S. Africa

### TRACHELOSPERMUM $x = 10$

<i>jasminoides</i>	Star Jasmine	20	Sugiura 1936a	H	Japan
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### VALLARIS $x = 10$

<i>heynei</i>		20	Rau 1941	H	Him.—Burma, Ceylon
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### CERBERA $x = 10, 11$

<i>odallum</i>		40	Rau 1941	M	India
<i>tanghin</i>	Tanghin Poison T.	44	EKJ*	M	Madagascar

<b>APOCYNUM</b> $x=11$					
<i>androsaemifolium</i>	Dogbane	16?	Schürhoff <i>et al.</i> 1937	—	N. America
<i>cannabinum</i>	Indian Hemp	16?	" "	MT	"
		22	Breslawetz <i>et al.</i> 1934		
<i>venetum</i>		16?	Schürhoff <i>et al.</i> 1937	T	Medit., Asia
		22	Medvedeva 1937		
<b>CARISSA</b> $x=11$					
<i>carandas</i>	Karaunda	22	Singh 1951	DFHW	India
<i>edulis</i>		22	Tjio 1948	FH	Egypt
<i>spinarum</i>		22	Singh 1951	H	India, Ceylon
<b>MASCARENHASIA</b> $x=11$					
<i>elastica</i>	Madagascar Rubber	22	EKJ*	Ru	Trop. Africa
<b>NERIUM</b> $x=11$					
<i>odorum</i>	Scented O.	22	Tjio 1948	HM	Persia, Ind., Japan
<i>oleander</i>	Oleander	22	" "	H	Medit.
<b>TABERNAEMONTANA (ERVATAMIA)</b> $x=11$					
<i>coronaria</i>	Grape Jasmine	22	Pathak <i>et al.</i> 1949	H	India
<b>ODONTADENA</b> $x=12$					
<i>speciosa</i>		24	Andersson 1931	H	Brazil, Guiana
<b>VINCA (CATHARANTHUS)</b> $x=(8), 23$					
<i>rosea</i>		16, (32)	Furusato 1940	H	Tropics
<i>difformis</i>		46	Bowden 1945a	—	Spain
<i>herbacea</i>		46	Finn 1928	H	E. Eur., A. Minor
<i>minor</i>	Periwinkle	46	Rutland 1941	HM	Europe
<i>major</i>		92	" "	HM	Medit.
<b>221 ASCLEPIADACEAE</b>					
<b>ARAUJIA</b> $x=10$					
<i>sericifera</i>		20	Schnack & C. 1947	H	S. Brazil
<b>PHILIBERTIA</b> $x=10$					
<i>gilliesii</i>		20	Covas & S. 1946	—	S. America
<b>ASCLEPIAS</b> $x=11$					
<i>curassavica</i>	Blood Flower	22	Moore 1946	HTM	Trop. Amer.
<i>incarnata</i>	Milk Weed	22	" "	HTRu	N. America
<i>latifolia</i>	Broad Leaf M.	22	Moyer 1936	—	"
<i>salicifolia</i>		22	" "	—	Mexico
<i>speciosa</i>		22	Moore 1946	H	W: N. America
<i>sullivantii</i>		22	" "	H	N. America
<i>syriaca</i>	Silk Weed	22	" "	RuV	"
<i>tuberosa</i>	Butterfly M.	22	" "	H	"
<b>GOMPHOCARPUS</b> $x=11$					
<i>fruticosus</i>		22	Pardi 1934	—	Medit.
<i>physocarpus</i>		22	" "	—	S. Australia
<b>HOYA</b> $x=11$					
<i>carnosa</i>	Wax Plant	22	Pardi 1934	HM	Tr. Austr. & Asia

<b>STAPELIA *</b> $x = 11$ Carrion Fl.						
<i>gigantea</i>	& 2 spp.	22	Pardi 1934			S. Africa
<i>variegata</i>	& 4 spp.	44	" "	H		
<b>STEPHANOTIS</b> $x = 11$						
<i>floribunda</i>		22	Pardi 1934	H		Madagascar
<b>VINCETOXICUM (CYNANCHUM)</b> $x = 11$						
<i>officinale</i>	Tame Poison	22	Pardi 1934	HM		Eur., Cauc.
<i>nigrum</i>		44		H		S. Eur., A. Minor
<b>CEROPEGIA</b> $x = 11$						
<i>debilis</i>		44	Pardi 1934	H		Trop. Africa
<i>woodii</i>		44	" "	H		S. Africa
<b>PERIPLOCA</b> $x = 11, 12$						
<i>sepium</i>		22	Sax & H. 1936	H		China
<i>graeca</i>	Silk Vine	22	Bowden 1940a			
		24	Pardi 1934	H		S. Eur., S.W. Asia
		24	Lopane 1951			
<b>CRYPTOSTEGIA</b> $x = 12$						
<i>grandiflora</i>		24	Pardi 1934	H(Ru)		Madag., India
<b>DAEMIA</b> $x = 12$						
<i>extensa</i>		24	Nirula 1945	H		India, Mal., Tr. Africa



## Group XV

### RUBIALES

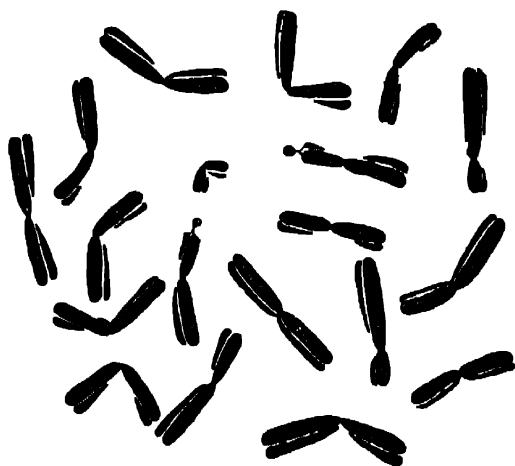
232, 233

HST

### ASTERALES

234–238

HS(T)



*Chrysanthemum millefoliatum*



## 232 RUBIACEAE

### OLDENLANDIA $x=9$

<i>crystallina</i>	18	Raghavan & R. '41	—	India, Malaya
<i>senegalensis</i>	18	Hagerup 1932	—	Trop. Africa
<i>alata</i>	36	Raghavan & R. '41	—	India
<i>aspera</i>	36	" "	—	India, Trop. Afr.
<i>capensis</i>	36	Hagerup 1932	—	Trop. & S. Afr.
<i>corymbosa</i> Parpata	36	Raghavan & R. '41	M	India
<i>umbellata</i> Chay	36	" "	D	Abyss., E. Indies
<i>paniculata</i>	72	" "		Tropics

### VAILLANTIA $x=9$

<i>hispida</i>	18	Fagerlind 1937	—	Medit.
<i>muralis</i>	18	" "	—	S. Europe

### BOUVARDIA $x=9$

<i>corymbosa (humboldti)</i>	36	Fagerlind 1937	H	<i>cult</i>
<i>hybrida</i>	36	" "	H	"
<i>coccinea</i>	c. 72	" "	H	Guiana
<i>leiantha</i>	c. 72	" "	H	Mexico

### DENTELLA $x=(9), 18$

<i>repens</i>	36	Raghavan & R. '41	—	Tr. Asia & Austr
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### HOUSTONIA $x=9$

<i>caerulea</i>	36	Fagerlind 1937	—	N. America
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### MANETTIA (LYGISTUM) $x=9?, 11$

<i>coccinea</i>	c. 36	Fagerlind 1937	H	Mex.—Colombia
<i>inflata</i>	c. 36	" "	H	Parag., Urug.
<i>bicolor</i>	22	Poucques 1949a	H	Brazil

### PENTAS $x=10$

<i>carnea (lanceolata)</i>	20	Fagerlind 1937	H	Trop. Afr., Arab.
<i>coccinea</i>	20	" "	—	Trop. Africa
<i>oncostipula</i>	20	" "		"

### ASPERULA (GALIUM) \* $x=10, 11$

<i>molluginoides</i>	20	Fagerlind 1937	—	Caucasus
<i>arcadiensis</i>	22	" "	H	Greece
<i>taurina</i> Pink Woodruff	22	" "	—	S. Europe
6 species	22	" "		
<i>galiioides (glauca)</i>	22, 44	" "	H	Eur., Cauc.
<i>cynanchica</i> Squinancywort	44	" "	H	Eur., Asia Minor
<i>hexaphylla</i>	44	" "	H	S. Europe
<i>odorata</i> Sweet Woodruff	44	" "	HMSp	Eur., S.W. Asia
<i>tinctoria</i> Dyer's W.	44	" "	D	Europe
5 species	44	" "		

### PHUOPSIS (CRUCIANELLA) $x=10, 11$

<i>stylosa</i> Crosswort	20	Fagerlind 1937	H	Caucasus
	22	Homeyer 1935		

### RONDELETIA $x=10, 11$

<i>amoena</i>	c. 40	Fagerlind 1937	H	Guatemala
<i>cordata</i>	c. 40	" "	H	"
<i>erythroneura</i>	c. 40	" "	H	Trop. America

# RONDELETIA (cont.)

<i>latifolia</i>	44	Fagerlind 1937	H	Guatemala
<i>odorata (speciosa)</i>	44	" "	H	Cuba

# GALIUM\* x = 10, 11, 12

<i>vallantii</i>	20	Fagerlind 1937	—	N. Temp.
<i>spurium</i>	{ 20	" "	—	Eur., S.W. Asia
<i>cruciata</i>	Crosswort & 14 spp. 22	Fagerlind 1934, 1937	M	Eur., N. Africa
<i>tricorne</i>	& 11 spp. 44	" "	—	Medit.
<i>austriacum</i>	22, 44	Ehrendorfer 1949	—	Europe
<i>flavicans</i>	22, 44	Fagerlind 1937	—	Hungary
<i>corrudaefolium (lucidum)</i>	22, 44	" "	—	S. Europe
<i>setaceum</i>	22, 44	" 1934	—	Medit., Temp. As
<i>uliginosum</i>	44	" 1937	—	Eur., N. Asia
<i>verum</i>	Lady's 22, 44, (66)	" "	BM	North Temp.
	Bedstraw			
<i>mollugo</i>	White 22, 44, 55, 66	" "	H	Europe
	Bedstraw			
<i>parisiense</i>	22, 44, 66	" "	—	Eur., S.W. Asia
<i>aparine</i>	Cleavers { 22, 44	Poucques 1949a	M	North Temp.
	c. 66, c. 88	Fagerlind 1934		
<i>anisophyllum</i>	44, 66	Ehrendorfer 1949	—	Europe
<i>boreale</i>	44	Löve & L. 1954	H	N. Eurasia
<i>septentrionale (boreale)</i>	66	" "	H	N: N. Amer., N Asia
<i>pumilum</i>	{ 44	Fagerlind 1937	—	Europe
	88	Ehrendorfer 1949		
<i>aristatum (laevigatum)</i>	44, 66, 88	Fagerlind 1937	—	"
<i>helveticum</i>	& 2 spp. 66	" "	—	"
<i>rubrioides</i>	{ 66	Homeyer 1935	—	Eur., N. Asia
	c. 132	Fagerlind 1934		
<i>trifidum</i>	24	" 1937	—	North Temp.
<i>palustre</i>	24, 48, 96	Hancock 1942	—	Eur., N. Asia

# CALLIPELTIS x = 11

<i>cucullaria</i>	22	Fagerlind 1934	—	Caucasus
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# CHOMELIA x = 11

<i>asiatica</i>	22	Raghavan & R. 1941	—	India
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# EXOSTEMMA x = 11

<i>subcordata</i>	22	Fagerlind 1937	—	W. Indies
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# GARDENIA x = 11

<i>jasminoides</i>	Cape Jasmine	22	Fagerlind 1937	HP	China, Japan
<i>intermedia</i>		22	" "	H	cult
<i>spatulifolia</i>		22	" "	—	Trop. Africa
<i>thunbergia</i>		22	" "	H	S. Africa

# MACROSPHYRA x = 11

<i>longistyla</i> , as <i>G. longistella</i>	22	Raghavan & R. 1941	—	Trop. Afr.
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<b>HYMENODICTYON</b> $x = 11$				
<i>excelsum</i>	22	Fagerlind 1937		Ind., Malaya
<b>IXORA</b> * $x = 11$				
<i>chinensis</i> & 14 spp.	22	Fagerlind 1937	H	S.E. Asia
<i>finlaysonianae</i>	22	Raghavan & R. 1941	—	Siam
<b>LEPTACTINIA</b> $x = 11$				
<i>mannii</i>	22	Fagerlind 1937		Trop. Africa
<b>MERICARPAEA</b> $x = 11$				
<i>vaillantoides</i>	22	Fagerlind 1937		W. Asia
<b>MITCHELLA</b> $x = 11$				
<i>repens</i> Partridge Berry	22	Atchison 1947a	HM	N. Amer., Japan
<b>MITRIOSTIGMA</b> $x = 11$				
<i>axillare</i>	22	Snoad 1952	H	S. Africa
<b>MORINDA</b> $x = 11$				
<i>tinctoria</i>	22	Raghavan & R. 1941	D	India, Malaya
<b>OPHIORRHIZA</b> $x = 11$				
<i>brunonis</i>	22	Raghavan & R. 1941	—	India
<b>PHYLLIS</b> $x = 11$				
<i>nobla</i>	22	Fagerlind 1934	—	Canaries, Madeira
<b>PORTLANDIA</b> $x = 11$				
<i>grandiflora</i>	c. 22	Fagerlind 1937	H	W. Indies
<b>PUTORIA</b> $x = 11$				
<i>calabrica</i>	22	Fagerlind 1937	H	Medit.
<b>RANDIA</b> $x = 11$				
<i>dumetorum</i>	22	Fagerlind 1937	D	Trop. Asia
<i>longiflora</i>	22	" "		Ind., Malaya
<i>maculata</i>	22	" "		Trop. Africa
<b>SERISSA</b> $x = 11$				
<i>foetida</i> ( <i>japonica</i> )	22	Fagerlind 1937		China, Japan
<b>SHERARDIA</b> $x = 11$				
<i>arvensis</i> Field Madder	22	Fagerlind 1937		Eur., T. Asia
<b>WARBURGINA</b> $x = 11$				
<i>factorovskyi</i>	22	Fagerlind 1937		Palest., Syria
<b>CEPHAELIS (URAGOGA)</b> $x = 11$				
<i>peduncularis</i>	22	Fagerlind 1937	H	Sierra Leone
<i>ipecacuanha</i> Ipecacuanha	22 44	" E.K.J.*	" M	Brazil
<b>COFFEA</b> $x = 11$				
<i>bengalensis</i>	22	Fagerlind 1937	—	Ind., Malaya
<i>canephora</i> Quillow Coffee	22	Doughty 1939	B	Trop. Africa
<i>dewevrei</i>	22	Krug 1937	—	

# COFFEA (cont.)

<i>dybowskii</i>		22	Krug 1937	—	Trop. Africa
<i>eugenoides</i>	E. African C.	22	Doughty 1939	B	E. Africa
<i>excelsa</i>	Senoussi C.	22	Heyn 1936	B	W. Africa
<i>robusta</i>	Congo C.	22	" "	B	Trop. Africa
<i>semiexserta</i>		22	Homeyer 1935	—	E. Indies
<i>stenophylla</i>	Sierra Leone C.	22	Fagerlind 1937	B	Abyssinia
<i>ugandae</i>		22	Krug 1936	—	Trop. Africa
<i>abeokutae</i>		{ 22	Heyn 1936	B	"
		{ 44	Fagerlind 1937		
<i>congensis</i>		{ 22	Krug 1934	B	Congo
		{ 44	Fagerlind 1937		
<i>liberica</i>	Liberian C.	{ 22	" "	B	Trop. Africa
		{ 44	Heyn 1936		
<i>arabica</i>	Mocha C.	44	Mendes 1945	B	"
v. <i>nacional</i> etc.		44	Krug 1936		
v. <i>bullata</i>		44, 66, 88	" 1936, 1937		

# COPROSMA x = 11

<i>baueri</i>		{ 22	Poucques 1949a	H	New Zealand
		{ 44	Fagerlind 1937		
<i>robusta</i>		{ 22	Poucques 1949a	H	"
		{ 44	Fagerlind 1937		
<i>acerosa</i>		44	" "	H	"
<i>cunninghamii</i>		44	" "	H	"
<i>lucida</i>		44	" "	H	"

# CRUCIANELLA \* x = 11

<i>angustifolia</i>		22	Poucques 1949a	H	C. Eur., Medit.
<i>glauca</i>	& 9 spp.	22	Fagerlind 1937	H	Persia
<i>latifolia</i>		{ 22	Poucques 1949a	H	Medit.
		{ 44	Fagerlind 1937		

# LEPTODERMIS x = 11

<i>lanceolata</i>		{ 22	Poucques 1949a	—	Himalayas
		{ c. 66	Fagerlind 1937		
<i>pilosa</i>		44	" "	—	China

# MUSSAENDA \* x = 11

<i>corymbosa</i>		22	Raghavan & R. 1941	—	India
<i>erythrophylla</i>	& 3 spp.	22	Fagerlind 1937	H	Trop. Africa
<i>stenocarpa</i>		c. 70	" "	—	"

# PAVETTA \* x = 11

<i>indica</i>	& 2 spp.	22	Fagerlind 1937	MMa	Tr. Asia & Aust.
<i>gardeniifolia</i>		44	" "	—	Abyssinia

# PSYCHOTRIA x = 11

<i>bacteriophila</i>	C. Is. Wild Coffee	22	Fagerlind 1937	Ma	Comoro Is.
<i>brasiliensis</i>		22	" "	—	Brazil
<i>emetica</i>		22	" "	M	Peru
<i>hirtella</i>		22	" "	—	Tr. E. Africa
<i>undulata</i>	Seminole Wild C.	22	" "	Ma	W. Indies
<i>africana</i>		44	" "	—	Africa

# RUBIA x = 11

<i>cordifolia</i>	Indian M.	22	Homeyer 1935	D	Tr. Asia and Afr.
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# **RUBIA (cont.)**

<i>tinctorum</i>	Madder	{ 22, 44	Poucques 1949a	D	S.E. Eur., S.W. Asia
<i>oliverii</i>		44	Fagerlind 1937	—	E. Europe
<i>cordata</i>		44	„ 1937	D	Tr. Asia & Amer.
<i>peregrina</i>	Levant M	{ 66	Poucques 1949a	D	Eur., Medit.
		c. 132	Fagerlind 1937		

# **CEPHALANTHUS $x=11$**

<i>occidentalis</i>	Button Bush	44	Fagerlind 1937	H	N. America
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# **GUETTARDA $x=(11), 22$**

<i>speciosa</i>		44	Raghavan & R. 1941		Trop. Asia
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# **LUCULIA $x=11$**

<i>pinceana</i>		44	Fagerlind 1937	—	Himalaya
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# **MYRMECODIA $x=(11), 22$**

<i>platyrea</i>		44	Homeyer 1935	—	S.E. Asia
<i>echinata</i>		{ 44	Fagerlind 1937		
		88	Homeyer 1935		

# **NERTERA $x=11$**

<i>depressa</i>	Bead Plant	44	Fagerlind 1937	H	S. Am., N.Z., Tas.
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# **HYDNOPHYTUM $x=(11), 22$**

<i>formicarum</i>		44	Fagerlind 1937	—	E. Indies
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# **PLECTRONIA $x=(11), 22$**

<i>parviflora</i>		44	Raghavan & R. 1941	—	Burma, Malaya
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# **SARCOCEPHALUS $x=(11), 22$**

<i>diderrichii</i>		44	Fagerlind 1937	—	Trop. Africa
<i>esculentus</i>	Negro Peach	44	„ „	DFM	„

# **VANGUERIA $x=(11), 22$**

<i>edulis</i>	Voa Vanga	44	Fagerlind 1937	F	Trop. Africa
<i>acutiloba</i>		44	„ „	F	E. Africa

# **CATESBAEA $x=12$**

<i>latifolia</i>		24	Fagerlind 1937	—	W. Indies
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# **HAMELIA $x=12$**

<i>patens (erecta)</i>		24	Fagerlind 1937	H	Trop. Amer.
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# **HOFFMANNIA $x=12$**

<i>discolor</i>		48	Fagerlind 1937	H	Mexico
<i>ghiesbreghtii</i>		48	„ „	H	„
<i>refulgens</i>		48	„ „	H	„
<i>roezlii</i>		48	„ „	H	<i>cult</i>
<i>regalis</i>		48	Homeyer 1935	H	Mexico

# **RICHARDIA (RICHARDSONIA) $x=14$**

<i>pilosa</i>		28	Fagerlind 1937	H	Trop. America
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# SPERMACOCE $x = 14$

<i>tenuior</i>		28	Fagerlind 1937	—	Trop. America
<i>hispida</i>		56	Raghavan & A. R. S. 1941	—	O.W. Tropics
<i>stricta</i>		56	Raghavan & R. 1941	—	" "

# CINCHONA $x = 17$

<i>calisaya</i>	Yellow C.	34, (68)	Dawson 1948	M	Bolivia
<i>ledgeriana</i>		34, (68)	" "	M	"
<i>succirubra</i>	Red C.	34, (68)	" "	M	Ecuador

# POSOQUERIA $x = 17$

<i>cookii</i>		34	Fagerlind 1937	H	<i>cult</i>
<i>longiflora</i>		34	" "	H	Guiana

## 233 CAPRIFOLIACEAE

### KOLKOWITZIA $x = (8), 16$

<i>amabilis</i>		32	Sax & K. 1930	H	C. China
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### LINNAEA $x = (8), 16$

<i>americana</i>		32	L. & L. 1944b	H	Eur., N. Amer.
<i>borealis</i>		32	Ehrenberg 1945	H	" "

### VIBURNUM $x = 8, 9, 10$

$x = 8$

<i>bitchiense</i>		16	Janaki Ammal 1953a	H	W. Japan
<i>foetens</i>		16	" "	H	N.W. Himal., Kashmir
<i>foetidum</i>		16	" "	H	W. China
<i>grandiflorum</i>		16	" "	H	Himal., Bhutan
<i>mongolicum</i>		16	" "	—	E. Sib., Kansu
<i>suspensum</i>		16	" "	H	Liukiu Is.
<i>as sandankwa</i>		18	Pouques 1949a	H	
<i>wrightii</i>		16	Janaki Ammal 1953a	H	Japan
<i>fragrans</i>		16	" "	H	Kansu
<i>v. alba</i>		32	" "	H	" <i>cult</i>
<i>erubescens</i>		48	" "	H	Szechuan, Hupeh
					Nilgris, Himal.
<i>henryi</i>		48	" "	H	Hupeh, Szech., Yunnan

$x = 9$

<i>acerifolium</i>	Dockmackie	18	" "	H	N. America
<i>alnifolium</i>	Hobble Bush	18	" "	H	"
<i>betulifolium</i>		18	" "	H	C. & W. China
<i>cinnamomifolium</i>		18	" "	H	W. China
<i>cotinifolium</i>		18	Pouques 1949a	H	Himalayas
<i>davidi</i>		18	Janaki Ammal 1953a	H	W. China
<i>furcatum</i>		18	" "	H	Japan
<i>harryanum</i>		18	Pouques 1949a	H	W. China
<i>lantana</i>	Wayfaring Tree	18	Janaki Ammal 1953a	H	Eur., W. Asia
<i>lentago</i>	Nannyberry	18	" "	FH	W: N. Amer.
<i>nudum</i>		18	" "	H	" "
<i>opulus</i>	Guelder Rose	18	" "	HM	Eur., N. Asia, N Africa
<i>ovalifolium</i>		18	" "	—	W. China

# VIBURNUM (cont.)

<i>propinquum</i>	18	Pouques 1949a	H	C. & W. China
<i>prunifolium</i> Black Haw	18	Janaki Ammal 1953a	FHM	W: N. America
<i>rhytidophyllum</i>	18	" "	H	C. & W. China
<i>sargentii</i>	18	Sax & K. 1930	H	N.E. Asia
<i>tomentosum</i>	18	Janaki Ammal 1953a	H	China, Japan
<i>trilobum</i> Am. Cranberry Bush	18	" "	F	N. America
<i>utile</i>	18	" "	H	C. China
<i>carlesii</i>	{ 18	Pouques 1949a,	H	Korea
	20	Janaki Ammal 1953a		
<i>lobophyllum</i>	{ 18	Sax & K. 1930	H	C. & W. China
	20, 22	Janaki Ammal 1953a		
<i>tinus</i> Laurustinus	36	" "	H	S.E. Europe
<i>dentatum</i>	54	" "	H	N. America
<i>x = 10</i>				
<i>buddleifolium</i>	20	" "	H	C. China
<i>odoratissimum</i> Sweet V.	40	" "	H	India, China

# ABELIA *x* = (8), 16, 18

<i>engleriana</i>	32	Sax & K. 1930	H	C. & W. China
<i>uniflora</i>	36	Pouques 1949a	H	E. China

# DIERVILLA *x* = 9

<i>lonicera</i>	18	Pouques 1949a	H	E: N. America
<i>rivularis</i>	36	Sax & K. 1930	H	S.E.: U.S.A.
<i>sessilifolia</i>	36	" "	H	"
<i>splendens</i>	36	Pouques 1949a	H	cult "

# WEIGELA (DIERVILLA) *x* = 9

<i>japonica</i>	18	Pouques 1949a	H	Japan
<i>florida (candida)</i>	36	" "	H	N. China
<i>hortensis</i>	36	Sax & K. 1930	H	Japan
<i>praecox</i>	36	" "	H	Korea

# LONICERA *x* = 9

<i>altmanni</i>	18	Jan. Ammal & S. '52	—	Turkestan
<i>bella</i>	18	Pouques 1949a	H	cult
<i>biflora</i>	18	Jan. Ammal & S. '52	—	S.W. Eur., N. Afr.
<i>canadensis (ciliata)</i>	18	" "	(F)H	E: N. America
<i>caprifolium</i>	18	Pouques 1949a	H	Eur., W. Asia
<i>chaetocarpa</i>	18	Jan. Ammal & S. '52	H	W. China
<i>chrysantha</i>	18	" "	H	N.E. Asia, Japan
<i>deflexicalyx</i>	18	" "	H	W. China, Tibet
<i>discolor</i>	18	" "	—	Kashmir-Afghan.
<i>etrusca</i>	18	" "	H	Medit.
<i>ferdinandii</i>	18	Pouques 1949a	H	N. China
<i>fragrantissima</i>	18	" "	H	E. China
<i>hildebrandtii</i>	18	Jan. Ammal & S. '52	H	Burma
<i>hispidia</i>	18	Pouques 1949a	H	Turkestan—W. China
<i>implexa</i>	18	Jan. Ammal & S. '52	H	Medit.
<i>involucrata</i>	18	" "	(F)H	Can., Rocky Mts.
<i>japonica</i>	18	" "	H	E. Asia
<i>koehneana</i>	18	" "	—	W. China
<i>korolkowii</i>	18	" "	H	Turkestan
<i>ledebourii</i>	18	" "	H	California
<i>maackii</i>	18	Pouques 1949a	H	Manch., Korea

# **LONICERA (cont.)**

<i>maximowiczii</i>		18	Jan. Ammal & S. '52	H	Manch., Korea
<i>minutiflora</i>		18	Pouques 1949a	H	<i>cult</i>
<i>morrowii</i>		18	Jan. Ammal & S. '52	H	Japan
<i>myrtilloides</i>		18	Pouques 1949a	H	Himalayas
<i>nervosa</i>		18	Jan. Ammal & S. '52	H	N.W. China
<i>nigra</i>		18	Pouques 1949a	H	Eur., Korea
<i>nitida</i>		18	" "	H	W. China
<i>orientalis</i>	Buckthorn H.	18	Sax & K. 1930	H	Asia M., Cauc.
<i>pileata</i>		18	Pouques 1949a	H	S. & W. China
<i>prolifera</i>		18	Jan. Ammal & S. '52	H	U.S.A.
<i>pyrenaica</i>		18	Pouques 1949a	H	Pyrenees
<i>quinquelocularis</i>		18	" "	H	Himalayas
<i>rupicola</i>		18	Jan. Ammal & S. '52	H	"
<i>ruprechtiana</i>		18	Pouques 1949a	H	Manch., N. China
<i>splendida</i>		18	Jan. Ammal & S. '52	H	Spain
<i>stabiana</i>		18	Vilmorin & S. 1927b	—	Italy
<i>standishii (sinensis)</i>		18	Pouques 1949a	H	China
<i>syringantha</i>		18	Jan. Ammal & S. '52	H	N.W. China
<i>tatarica</i>	Tartarian H.	18	" "	H	S. Russ., Alt., Turkestan
<i>tatsienensis</i>		18	Pouques 1949a	H	W. China
<i>tomentella</i>		18	Jan. Ammal & S. '52	H	Sikkim
<i>trichosanthes</i>		18	" "	H	W. China, Tibet
<i>vesicaria</i>		18	" "	—	Korea
<i>xylosteum</i>	Eur. Fly Honey-suckle	18	Pouques 1949a	H	Eur.—Altai
<i>yunnanensis</i>		18	Jan. Ammal & S. '52	H	S.W. China
<i>alpigena</i>		{ 18	Pouques 1949a	H	C. Europe
		{ 36	Jan. Ammal & S. '52		
<i>coerulea</i>		18, 36	Sax & K. 1930	H	N. Eurasia
<i>glehnii</i>		{ 18	Pouques 1949a	—	Japan, Sakhalin
		{ 36	Jan. Ammal & S. '52		
<i>myrtillos</i>		18	" "	H	Afghan., Himal.
<i>v. depressa</i>		36	" "	H	Alpine Himal.
<i>periclymenum</i>	Woodbine	18, 36	" "	H	Eur., Medit.
<i>sempervirens</i>	Trumpet H.	{ 18	Pouques 1949a	H	E. & C. U.S.A.
		{ 36	Jan. Ammal & S. '52		
<i>tenuipes</i>		{ 18	" "	H	Japan
		{ 36	M. & S. 1935		
<i>thibetica</i>		18, 36	Sax & K. 1930	H	Tibet, W. Szech.
<i>alseuosmoides</i>		36	" "	H	W. China
<i>microphylla</i>		36	Jan. Ammal & S. '52	H	C. Asia
<i>henryi</i>		54	" "	H	Assam, S.W. Ch.
<i>v. coriacea</i>		54	" "	H	W. Szechuan
<i>tragophylla</i>		54	" "	H	S.W. China

## **SYMPHORICARPOS $x=9$**

<i>orbiculatus</i>	Indian Currant	18	Sax & K. 1930	(F)H	E: N. America
<i>albus</i>	Snowberry	c. 54	" "	(F)H	N. America

## **SAMBUCUS $x=(9), 18, 19$**

<i>ebulus</i>	Dwarf Elder	{ 32	Battaglia 1946	H	Eur., N. Afr., Asia
		{ 36	Pouques 1949a		
<i>canadensis</i>	Sweet Elder	36	Sax & K. 1930	A(F)M	E: N. America

# SAMBUCUS (cont.)

<i>chinensis</i>		36	Suzuka 1950a	—	Trop. Asia
<i>javanica</i>		36	Bowden 1940a	—	"
<i>nigra</i>	European El.	36	Poucques 1949a	AB(F)	Eur., N. Afr., W Asia
<i>pubens</i>	Red-berried E.	36	Bowden 1940a	H	E: N. America
<i>racemosa</i>	Eur. Red E.	36	Sax & K. 1930	AB(F)	Eur., W. Asia
<i>buergeriana</i>		38	M. & S. 1935	—	Japan

## 234 ADOXACEAE

### ADOXA $x=9$

<i>moschatellina</i>	Moschatel	36	Geitler 1940,	H	North Reg.
		36	Poucques 1949a		
		54	Oikawa 1942		
		56	M. & S. 1935		

## 235 VALERIANACEAE

<i>angustifolius</i>		14	Poucques 1949a	H	S. Europe
<i>gilloti</i>		14	" "	—	France
<i>ruber</i>	Red Valerian	14	" "	H	Eur., S.W. Asia

### VALERIANA $x=7, 8$

$x=7$

<i>baltica</i>		14	Runquist 1937	—	Scandinavia
<i>exaltata</i>		14, 18	Skalinska 1950b	—	Europe
<i>officinalis</i>	Valerian,	14	Poucques 1949a	HM	Eur., N. Asia
	All-heal	28, 56	Skalinska 1946		
<i>tenuifolia</i>		28	" 1950b	—	C. Europe
<i>wallichii</i>		28	Kishore 1951	M	India
<i>capitata</i>		56	S. & S. 1941	—	Arctic, Alp.
<i>sambucifolia</i>		56	Skalinska 1950b	H	Europe
<i>as excelsa</i>		14, 56	Runquist 1937		
<i>salina</i>		56	" "	—	Scandinavia

$x=8$

<i>dioica</i>	Marsh V.	16	Meurman 1925	—	Europe
<i>flaccidissima</i>		16	M. & S. 1935	—	Japan
<i>simplicifolia</i>		16	Skalinska 1950a	—	Europe
<i>tripteris</i>		16	" "	—	"

### VALERIANELLA \* $x=7, 8, 9$

<i>dentata</i>		14	Elvers 1932b	—	Eur., W. As., N Africa
<i>eriocarpa</i>	Ital. Corn Salad	14	Poucques 1949a	V	Medit., N. Africa
<i>locusta</i>	Lamb's Lettuce	14	" "	V	Eur., W. As., N Africa
<i>rimosa</i>	& 4 spp.	14	Elvers 1932b	—	Eur., N. Africa
<i>echinata</i>	Prickly Corn Salad	14	Poucques 1949a	H	S. Eur., Asia M.
		16	Elvers 1932b		
<i>diodon</i>		32	" "	—	Asia Minor
<i>stenaphodon</i>		32	" "	—	Algeria
<i>szovitziana</i>		c. 32	" "	—	Ar., Syr., Persia
<i>uncinata</i>		16	" "	—	Cauc., Persia

**VALERIANELLA (cont.)**

<i>carinata</i>	18	Elvers 1932b		Eur., S.W. Asia
<i>turgida</i>	18	„ „		Medit.

**FEDIA (MITROPHORA)  $x = (8), 16$** 

<i>cornucopiae</i> Afr. V.	32	Poucques 1949a	V	Medit.
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**PATRINIA  $x = 11$** 

<i>scabiosaefolia</i>	22	Sugiura 1936b	—	N. China
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## 236 DIPSACACEAE

**CEPHALARIA  $x = 5, 9$** 

<i>syriaca</i>	10	Kachidze 1929	HO	Medit., S.W. Asia
<i>ambrosioides</i>	18	„ „	—	Greece
<i>caucasica</i>	18	„ „	—	Caucasus
<i>graeca</i>	18	„ „	—	Greece
<i>leucantha</i>	18	„ „	H	S.W. Europe
<i>media</i>	18	„ „	—	Transcaucasia
<i>rigida</i>	18	„ „	H	S. Africa
<i>transsylvanica</i>	18, 36	Poucques 1949a	H	S.E. Eur., S.W. Asia
<i>uralensis (corniculata)</i>	18	Kachidze 1929	—	Banat
<i>as laevigata</i>	36	„ „	—	
<i>alpina</i> Yellow C.	36	„ „	H	Europe
<i>tatarica</i>	36	„ „	H	N. & W. As., Russ.
<i>tchihatchewi</i>	36	„ „	H	Armenia

**CALLISTEMMA  $x = 7$** 

<i>brachiatum</i>	14	Kachidze 1929	H	E. Medit.
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**DIPSACUS  $x = 8, 9$** 

<i>laciniatus</i>	{	16	Poucques 1949a	H	Eur., S.W. Asia
		18	Kachidze 1929		
<i>sylvestris</i> Wild T.		16	Poucques 1949a		
		18	Kachidze 1929		
<i>azureus</i>		18	„ „	H	Siberia
<i>ferox</i>		18	„ „	—	Corsica
<i>fullonum</i> Fuller's Teasel		18	„ „	HTo	Eur., Cauc.
<i>as sativus</i>		18	„ „		
<i>inermis</i> Spineless T.		18	„ „	H	Himalayas
<i>japonicus</i>		18	Suzuka 1950	—	China, Japan
<i>pilosus</i>		18	Kachidze 1929	H	Eur., Cauc.
<i>torsus?</i>		18	„ „	—	
<i>chinensis</i> China T.		36	„ „	H	China

**SCABIOSA \*  $x = 8, 9$** 

$x = 8$

<i>atropurpurea</i> Sweet Scabious	16	Braun, T. 1937	H	Medit., Canaries
<i>caerulea</i>	16	Risse 1928	—	E. Europe
<i>canescens</i>	16	L. & L. 1944b	H	Cent. Europe
<i>columbaria</i> Small S. & 7 spp.	16	Kachidze 1929	H	Old World
<i>daucoides</i>	16	Risse 1928	—	Algeria
<i>lucida</i>	16	Poucques 1949a	H	Cent. Europe
<i>purpurea</i>	16	Poddubnaja 1933b	—	Caucasus
<i>suaveolens</i>	16	Poucques 1949a	H	C. Eur., Asia M.

## SCABIOSA (cont.)

$x = 9$

<i>cretica</i>	& 5 spp.	18	Kachidze 1929	—	Crete, Sicily
<i>prolifera</i>	Carmel Daisy	18	" "	H	Syr.-Cyp.
<i>stellata</i>		36	" "	—	W. Medit.
<i>caucasica</i>		36, 54	" "	H	Cauc., C. Asia

## KNAUTIA (SCABIOSA) $x = 8, 10$

$x = 8$

<i>magnifica</i>		16	Chiarugi 1927b	—	Macedonia
<i>orientalis</i>		{ 16	Kachidze 1929,	—	S.W. Asia
		16	Poucques 1949a		
<i>sylvatica</i>		16	Risse 1928	H	Caucasus
<i>v. dipsacifolia</i>		48	Chiarugi 1927c		
		16?	Poucques 1949a		
<i>arvensis</i>	Field S.	{ 20	Wulff 1938	H	Eur., Caucasus
		40	Kachidze 1929,		
		40	L. & L. 1944b		

$x = 10$

<i>hybrida (integriifolia)</i>		20	Kachidze 1929	H	Gr., Asia M.
<i>purpurea</i>		20	" "	—	Caucasus

## SUCCISA (SCABIOSA) $x = 8, 10$

<i>inflexa</i>		16	Poucques 1949a	—	Europe
<i>australis</i>		20	Kachidze 1929	H	S. Europe
<i>pratensis</i>	Devil's Bit Sc.	20	" "	H	Europe

## PTEROCEPHALUS (SCABIOSA) $x = 9$

<i>parnassi (S. pteroccephala)</i>		18	Kachidze 1929	H	Greece
<i>plumosus</i>		18	" "	—	Asia Minor

## MORINA $x = 17$

<i>longifolia</i>	Whorl Fl.	{ 34	Kachidze 1929	H	Himalayas
		34	Poucques 1949a		
<i>persica</i>		34	Kachidze 1929	—	Himal., S.W. As

# 238 COMPOSITAE

Order of the Tribes with their Basic Numbers

I Cichorieae: 3-9	VIII Arctotideae: 5, 7, 8, 9
II Heliantheae: 4-19	IX Calenduleae: 7, 8, 9, 10
III Astereae: 4, 5, 6, 9	X Anthemideae: 8, 9, 10, 17
IV Inuleae: 5, 7, 8, 9, 10, 11 13	XI Vernoneae: 9, 11
V Cynareae: 6-18	XII Eupatorieae: 10, 17, 19
VI Senecioneae: 5, 9, 11, 12, 23, 26, 29	XIII Mutisieae: 18, 23, 24, 25, 27
VII Heleneae: 7-17	

## TRIBE I: CICHORIEAE

### CREPIS (115 species counted) \*

#### A. RHIZOMATOUS $x = 4, 5, 6, 8$

<i>chrysantha</i>	& 5 spp.	8	Babcock 1947	C. & N.E. Asia
<i>aurea</i>	& 2 spp.	10	" "	C. & E. Europe
<i>pygmaea</i>	& 13 spp.	12	" "	Eur. Alps
<i>polytricha</i>		16	" "	C. Asia

CREPIS (cont.)

B. PRIMITIVE TAP-ROOTED		$x = 4, 5, 7, 8, x_2 = 11$ (High Polyploids Apomictic)			
<i>tectorum</i>	& 17 spp.	8	Babcock 1947	—	Eur., Temp. Asia
<i>albida</i>	& 10 spp.	10	" " '51	—	S. Eur., N. Afr.
<i>flexuosa</i>	& 2 spp.	14	" "	—	C. Asia
<i>crocea</i>	& 1 sp.	16	" "	—	C. & E. Asia
<i>runcinata</i>		22	" "	—	W: N. Amer.
<i>bakeri</i>		22-55	" "	—	"
<i>acuminata</i>	& 5 spp.	22-88	" "	—	"
<i>intermedia</i>		33-88	" "	—	"
<i>barbigera</i>		44-88	" "	—	"
<i>biennis</i>		40	" "	—	Eur., W. Asia
<i>ciliata</i>		40	" "	—	S. Caucasus
<i>taygetica</i>		40	" "	—	S. Greece
C. ADVANCED TAP-ROOTED		$x = 3, 4, 5$			
<i>capillaris</i>		6	Babcock 1947	—	Europe
<i>fuliginosa</i>		6	" "	—	E. Medit.
<i>zacintha</i>		6	" "	—	Medit.
<i>neglecta</i>		8	" "	—	S. Eur., Asia M.
<i>setosa</i>	& 31 spp.	8	" "	—	" "
<i>vesicaria</i>		8, 16	" "	—	Medit.
<i>foetida</i>		10	" "	—	Eur., As. M., Pers.
<i>rubra</i>	& 4 spp.	10	" "	—	S.E. Eur., Asia M.
<i>syriaca</i>	10 + 0-8B	" "	" "	—	Syria, Palestine

HYPOCHAERIS (HYPOCHOERIS)\*  $x = 3, 4, 5$

<i>cretensis</i>		6	Stebbins <i>et al.</i> 1953	—	Crete
<i>pinnatifida</i>		6	" "	—	Corsica
<i>aetnensis</i>		12	" "	—	Europe
<i>brasilensis</i>	& 2 spp.	8	" "	—	Urug., Argent.
<i>elata</i>		8	Krapovickas 1951a	—	S. America
<i>halophila</i>		8	Schnack & C. 1947	—	"
<i>radicata</i>	Cat's Ear	8	Stebbins <i>et al.</i> 1953	—	Eur., N. Africa
<i>tweediei</i>	& 3 spp.	8	Saez 1949a	—	S. America
<i>stenocephala</i>		16	Stebbins <i>et al.</i> 1953	—	Andes
<i>maculata</i>	& 2 spp.	10	" "	—	Eur., W. Asia
<i>uniflora</i>		10	Szwabowicz 1954	—	Europe
<i>glabra</i>		{ 10	Stebbins <i>et al.</i> 1953	—	"
		{ 12	Negodi 1935	—	"

ROBERTIA  $x = 4$

<i>taraxacoides</i>		8	Martinoli 1953	—	Medit.
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HEDYPNOIS (RHAGADIOLUS)  $x = 4$

<i>cretica</i>		8	Stebbins <i>et al.</i> 1953	—	Medit.
<i>globulifera</i>		16	Negodi 1936b	—	
<i>tubaeformis</i>		16	Stebbins <i>et al.</i> 1953	—	

LEONTODON  $x = 4, 5, 6, 7$  (Apomictic)

<i>asperrimus</i>		8	Stebbins <i>et al.</i> 1953	—	S. Eur., S.W. Asia
<i>graecum</i>		8	" "	—	Greece
<i>nudicaulis</i>		8	" "	—	Europe
as <i>Thrinicia hirta</i>		{ 10	Wulff 1937b	—	Europe
<i>helveticus</i>		12	Favarger 1953	—	S. Eur. mtns.
<i>montanus</i>		12	" "	—	" "
<i>autumnalis</i>		{ 12	Bergman 1935c	—	Europe
		{ 24	L. & L. 1948	—	Europe
<i>crispus</i>		14	Bergman 1935c	—	S. Europe

# LEONTODON (cont.)

<i>hispidus</i>	{ 14 + B	14 Elliot 1950	—	Eur., S.W. Asia
		14 Bergman 1935c	—	
<i>villarsii</i>		14 Stebbins <i>et al.</i> 1953	—	Europe

# GARHADIOLUS $x = 5$

<i>hedypnois</i>	10	Stebbins <i>et al.</i> 1953	—	S.W. Asia
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# PICRIS $x = 5$

<i>echioides</i>	10	Schnack & C. 1947	H	Medit., N. Afr.
<i>hieracioides</i>	10	Bergman 1932	—	Eur., Temp. Asia

# RHAGADIOLUS $x = 5$

<i>edulis</i>	10	Stebbins <i>et al.</i> 1953		Medit., Asia M.
<i>stellatus</i>	10	" "	—	Medit.

# WILLEMETIA $x = 5$

<i>stipitata</i>	10	Stebbins <i>et al.</i> 1953	—	Alps
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# CHONDRILLA $x = 5$ (Apomixis) \*

<i>ambigua (pauciflora)</i>	10	Poddubnaja 1933a	—	Russia, Siberia
<i>chondrilloides</i>	10	Bergman 1952	—	E. Eur. mtns.
<i>juncea</i>	15	Battaglia 1949	—	Eur., C. Asia
<i>leiosperma</i> & 5 spp.	15	Poddubnaja 1933a	—	" "
<i>ornata</i> & 1 sp.	20	" "	—	Russia, C. Asia

# KRIGIA $x = 5$

<i>virginica</i>	10	Stebbins <i>et al.</i> 1953	—	E. U.S.A.
<i>dandelion</i>	59	" "	—	"

# IXERIS (LACTUCA, CREPIDIASTRUM)\* $x = 5, 6, 7, 8$ (Triploid Apomictic)

<i>denticulata</i>	10	Ono 1943	—	Japan
<i>lanceolata</i> & 2 spp.	10	Babcock <i>et al.</i> 1937	—	"
<i>alpicola</i>	14	Ishikawa 1921	—	"
<i>dentata</i>	{ 21	Babcock <i>et al.</i> 1937	—	"
		24 Ono 1941	—	"
<i>stolonifera</i> & 3 spp.	16	Babcock <i>et al.</i> 1937	—	"
<i>chinensis</i>	32	" "	—	"
<i>japonica</i> (3x)	48	Ishikawa 1921	—	"

# YOUNGIA (LACTUCA, CREPIS) \* $x = 5, 8$

<i>tenuifolia</i>	15, 20	Babcock <i>et al.</i> 1937	—	Himal., N. Asia
<i>japonica</i> & 2 spp.	16	" "	—	Japan
<i>paleacea</i>	32	" "	—	Yunnan

# LYGODESMIA $x = 6$

<i>rostrata</i>	12	Stebbins <i>et al.</i> 1953	—	W: N. America
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# PYRRHOPAPPUS $x = 6$

<i>carolinianus</i>	12	Stebbins <i>et al.</i> 1953	—	E. U.S.A.
<i>rothrockii</i>	12	" "	—	"

# LAPSANA $x = 6, 7$

<i>communis</i> Nipplewort	{ 12	L. & L. 1948		Eur., N. & S.W.
		14 Stebbins <i>et al.</i> 1953		Asia

<b>SCORZONERA</b> * $x = 6, 7$					
<i>deliciosa</i>	Sicilian Sc.	12	Telezynski, T. 1931	R	Sicily
<i>tuberosa</i>	& 2 spp.	12	Poddubnaja <i>et al.</i> '35	R	Turkestan
<i>nervosa</i>		12, 13	Krajevoy 1934b	—	Arm., Persia
<i>acanthoclada</i>	& 3 spp.	14	P. <i>et al.</i> 1935	—	Turkestan
<i>cana</i>		14	Polya 1948	—	E. Eur., Asia M.
<i>hispanica</i>	Black Salsify	14	P. <i>et al.</i> 1935	R	S. Europe
<i>humilis</i>		14	Wulff 1938	—	Europe
<i>tau-saghyz</i>	Tau Saghyz	14	Krajevoy 1934a	Ru	N. Asia
<b>TRAGOPOGON</b> * $x = 6, 7$					
<i>dubius (major)</i>	& 1 sp.	12	P. <i>et al.</i> 1935	R	Europe
<i>porrifolius</i>	Salsify	12	" "	R	Medit.
<i>pratensis</i>	Goat's Beard	12	Winge 1926	HR	Eur., Cauc.—Sib.
<i>cupani</i>		24	P. <i>et al.</i> 1935	R	Sicily
<i>mirus</i>		24	Ownbey 1950	—	N.W: U.S.A.
<i>miscellus</i>		24	" "	—	"
<i>crocifolius</i>		14	R. D. Brock unp.	H	Italy
<b>ANISOCOMA</b> $x = 7$					
<i>acaulis</i>		14	Stebbins <i>et al.</i> 1953	—	Calif., Nevada
<b>CALYCOSERIS</b> $x = 7$					
<i>wrightii</i>		14	Stebbins <i>et al.</i> 1953	—	S.W: U.S.A.
<b>LAUNAEA</b> $x = 7, 8, 9$					
<i>arborescens</i>		14	Stebbins <i>et al.</i> 1953	—	N.W. Africa
<i>integrifolia</i>		16	Hagerup 1932	—	Sudan
<i>pumila</i>		16	Lorenzo-Andreu & G. 1950	—	Spain, Arabia
<i>quercifolia</i>		16	Stebbins <i>et al.</i> 1953	—	N. Africa
<i>resedifolia</i>		16	" "	—	Algeria
<i>acaulis</i>		18	" "	—	India
<i>nudicaulis</i>		18	" "	—	Medit., S.W. Asia
<b>MALACOTHRIX</b> * $x = 7, 9$					
<i>californica</i>	& 5 spp.	14	Stebbins <i>et al.</i> 1953	—	W: U.S.A.
<i>clevelandii</i>		14, 28			
<i>saxatilis</i>		18			
<b>SONCHUS</b> * $x = 7, 8, 9$					
$x = 7$					
<i>tenerrimus</i>		14	Stebbins <i>et al.</i> 1953	—	Medit.
$x = 8$					
<i>oleraceus</i>	Sow or Milk Thistle	32	" "	Fo(V)	Cosmop.
<i>arvensis</i>		64	Wulff 1937b	—	Eur., W. Asia
$x = 9$					
<i>asper</i>	& 7 spp.	18	Stebbins <i>et al.</i> 1953	—	Cosmop.
<i>grandifolius</i>		36	" "	—	New Zealand
<i>javanicus</i>		54	" "	—	Java
<i>oleraceus</i> $\times$ <i>asper</i> (16 + 9)		25	Barber 1941b		<i>nat. hybrid</i>

<b>APOSERIS</b> $x = 8$					
<i>foetida</i>		16	Stebbins <i>et al.</i> 1953	—	Alps
<b>DUBYAEA (LACTUCA) *</b> $x = 8$					
<i>hispidia</i>	& 1 sp.	16	Babcock <i>et al.</i> 1937	—	Asia M., Syria
<b>HYOSERIS *</b> $x = 8$					
<i>radiata</i>		16	Stebbins <i>et al.</i> 1953		Medit.
<i>lucida</i>	& 2 spp.	16	Martinoli 1953		
<i>californica</i>	& 1 sp.	16	Stebbins <i>et al.</i> 1953	—	California
<b>REICHARDIA (PICRIDIMUM)</b> $x = 8$					
<i>tingitana</i>		16	Telezinsky, T. 1931	D?	Medit., S.W. Asia
<b>STEPHANOMERIA *</b> $x = 8$					
<i>cichoriacea</i>	& 3 spp.	16	Stebbins <i>et al.</i> 1953	—	W: U.S.A.
<i>virgata</i>		16, 32	„ „	—	„
<b>TARAXACUM *</b> $x = 8$ (Polyploids Apomictic)					
<i>bessarabicum</i>	& 4 spp.	16	Poddubnaja & D. '34	V	Eur., N. Asia
<i>kok-saghyz</i>	Kok-Saghyz	16 (32)	Navashin & G. 1941	Ru	Turkestan
<i>laevigatum</i>	Smooth D.	24	Poddubnaja & D. '34	(V)M	N. & S. Temp.
<i>parnassicum</i>		24	„ „	Ru	Greece
<i>robustum</i>		24	„ „	Ru	Japan
<i>vulgare</i>	Dandelion	16, 24, 48	Woess 1949	M(V)	N. & S. Temp.
	(22-26, 33, 46-48)		Sorensen & G. 1946		
<i>hybernum (gymnanthum)</i>		32	Poddubnaja & D. '37	Ru	Medit.
<i>megclorrhizon</i>	Krim-Saghyz	32	Battaglia 1948	Ru	Crimea
other apomicts	24, 32, 40, 48	{ Battaglia 1948, Erlandsson 1939b, Gustafsson '32, '35a, b, Poddubnaja & D. '37			
<b>PRENANTHES (CREPIS) *</b> $x = 8, 9$					
<i>nana</i>	& 5 spp.	16	Babcock <i>et al.</i> 1937	—	N. America
<i>alba</i>		32	„ „	—	„
<i>purpurea</i>	& 1 sp.	18	„ „	—	Europe
<b>LACTUCA (MULGEDIUM) *</b> $x = 8, 9$ (Old World). $x_2 = 17$ (New World)					
$x = 8$					
<i>aurea</i>		16	Babcock <i>et al.</i> 1937	—	Europe
<i>bracteata</i>	& 8 spp.	16	„ „	—	Himalayas
<i>bourgaci</i>	Bourget	16	Whitaker & J. 1939	—	Asia Minor
<i>macrantha</i>	& 5 spp.	16	Stebbins <i>et al.</i> 1953	—	India
$x = 9$					
<i>chondrillaeflora</i>		18	Whitaker & J. 1939	—	S. Europe
<i>perennis</i>	Perennial L.	18	Thompson <i>et al.</i> '41	—	Europe
<i>raddiana</i>		18	„ „	—	Japan
<i>saligna</i>	& 3 spp.	18	„ „	—	Europe
<i>sativa</i>	Lettuce	18	„ „	V	<i>cult</i>
	{ (36 + B)	18	Einset 1944		
<i>serriola</i>		18	Thompson <i>et al.</i> '41	V	Europe
<i>squarrosa</i>	Prickly L.	18	Ono 1943	—	Japan
<i>tatarica</i>		18	Whitaker & J. 1939	—	India, W. Asia
<i>viminea</i>		18	Babcock <i>et al.</i> 1937	—	Turkey

<b>LACTUCA (cont.)</b>					
<i>virosa</i>	Wild L.	18	Thompson <i>et al.</i> '41	M	Europe
<i>orientalis</i>		36	Babcock <i>et al.</i> 1937	—	Himalayas
$x_2 = 17$					
<i>campestris</i>		34	Babcock <i>et al.</i> 1937	—	E: N. America
<i>canadensis</i>		34	Whitaker & J. 1939		
<i>ludoviciana</i>		34	Stebbins <i>et al.</i> 1953		
<i>spicata</i>	& 3 spp.	34	Thompson <i>et al.</i> '41		
<b>MYCELIS (LACTUCA) <math>x = 9</math></b>					
<i>muralis</i>	Wall Lettuce	18	Thompson <i>et al.</i> '41		Eur., Asia M., Caucasus
<b>CEPHALORRHYNCHUS (LACTUCA) <math>x = 9</math></b>					
<i>glandulosus</i>		18	Babcock <i>et al.</i> 1937		Asia Minor
<b>APARGIDIUM <math>x = 9</math></b>					
<i>boreale</i>		18	Stebbins <i>et al.</i> 1953		N. America
<b>ANDRYALA * <math>x = 9</math></b>					
<i>integrifolia</i>	& 2 spp.	18	Stebbins <i>et al.</i> 1953		Medit.
<b>ARNOSERIS <math>x = 9</math></b>					
<i>maxima</i>		18	Wulff 1939b		Europe
<i>minima</i>	Lamb's Succory	18	Stebbins <i>et al.</i> 1953	—	
<i>(pusilla)</i>					
<b>ATRICHOSERIS <math>x = 9</math></b>					
<i>platyphylla</i>		18	Stebbins <i>et al.</i> 1953	—	S.W.: U.S.A.
<b>CATANANCHE <math>x = 9</math></b>					
<i>lutea</i>		18	Stebbins <i>et al.</i> 1953		Medit.
<b>CHAETADELPHA <math>x = 9</math></b>					
<i>wheeleri</i>		18	Stebbins <i>et al.</i> 1953	—	W: U.S.A.
<b>CICERBITA (LACTUCA, SONCHUS) <math>x = 9</math></b>					
<i>alpina</i>		18	Stebbins <i>et al.</i> 1953	—	Arctic, Alpine
<b>CICHORIUM <math>x = 9</math></b>					
<i>intybus</i>	Chicory	18	Stebbins <i>et al.</i> 1953	BV	Eur., S.W. Asia, N. Africa
<i>endivia</i>	Endive	{ 18 36	{ Rick 1953 Thomas 1945*	V	Eur., S.W. Asia
<b>GLYPTOPLEURA <math>x = 9</math></b>					
<i>marginata</i>		18	Stebbins <i>et al.</i> 1953		S.W.: U.S.A.
<b>PHALACROSERIS <math>x = 9</math></b>					
<i>bolanderi</i>		18	Stebbins <i>et al.</i> 1953		N. America
<b>TOLPIS * <math>x = 9</math></b>					
<i>succulenta</i>	& 3 spp.	18	Stebbins <i>et al.</i> 1953		Canary Is.
<b>HIERACIUM * <math>x = ?</math>, 9</b>					
<i>japonicum</i>		14	M. & S. 1935	—	Japan
sexual species		18	Bergman 1941, Böcher & L. 1950	—	N. Temp.

# HIERACIUM (cont.)

apomicts	27, 36, 45	<div> <div>Christoff &amp; C. 1948, —</div> <div>Favarger 1949b, 1953,</div> <div>Gentcheff &amp; G. 1940b,</div> <div>Gustafsson 1935, 1947,</div> <div>Stebbins <i>et al.</i> 1953</div> </div>			N. Temp.
AGOSERIS* $x=9$					
<i>grandiflora</i> & 1 sp.	18	Stebbins <i>et al.</i> 1953	—		W: N. America
<i>glauca</i>	18, 36	" "	—		"
<i>heterophylla</i>	18, 36	" "	—		"
<i>apargioides</i>	36	" "	—		"
MICROSERIS* $x=9$					
<i>laciniata</i> & 7 spp.	18	Stebbins <i>et al.</i> 1953	—		W: N. America
<i>acuminata</i>	36	" "	—		"
<i>lindleyi</i>	36	" "	—		"
PINAROPAPPUS $x=9$					
<i>roseus</i>	18, 36	Stebbins <i>et al.</i> 1953	—		Tex., Mex.
DENDROSERIS $x=9$					
<i>macrophylla</i>	36	Stebbins <i>et al.</i> 1953	—		Juan Fernandez
<i>pinnata</i>	36	" "	—		" "
KOELPINIA $x=9$					
<i>linearis</i>	54	Stebbins <i>et al.</i> 1953	—		S.W. As., N. Afr
SCOLYMUS $x=10$					
<i>hispanicus</i> Span. Oyster Pl.	20	Stebbins <i>et al.</i> 1953	R		Medit.
<i>maculatus</i>	20	" "	—		"

## TRIBE II: HELIANTHEAE

HOLOCARPHA $x=4, 6$					
<i>macradenia</i>	8	J. Clausen 1951	—		California
<i>virgata</i>	8	" "	—		"
<i>heermannii</i>	12	" "	—		"
<i>obconica</i>	12	" "	—		"
CALYCADENIA (HEMIZONIA) $x=4, 6, 7$					
<i>spicata</i>	8	J. Clausen <i>et al.</i> '34	—		California
<i>villosa</i>	12, 14	" "	—		"
MADIA $x=6, 7, 8, 9$					
$x=6$					
<i>bolanderi</i>	12	J. Clausen 1951	—		California
$x=7$					
<i>madioides</i>	14	" "	—		"
<i>glomerata</i>	28	" "	H		"
$x=8$					
<i>citriodora</i>	16	" "	—		"
<i>elegans</i> Tidy Tips	16	" "	H		"
<i>radiata</i>	16	" "	—		"
<i>rammii</i>	16	" "	—		"
<i>subspicata</i>	16	" "	—		"
<i>wheeleri</i>	16	" "	—		"
<i>yosemitana</i>	16	" "	—		"
<i>capitata</i>	32	" "	—		W: N. & S. Amer.

# MADIA (cont.)

<i>chilensis</i>	32	J. Clausen 195		Chile
<i>exigua</i>	32	" "		California
<i>gracilis</i>	32, 48	" "		
<i>minima</i>	32	" "		
<i>sativa</i>	32	" "	HO	
$x = 9$				
<i>hallii</i>	18	" "		
<i>nutans</i>	18	" "		
<i>citigracilis</i> ( <i>gracilis</i> $\times$ <i>citriodora</i> )	48	" "		

# LAYIA $x = 7, 8$

$x = 7$				
<i>chrysanthemoides</i>	14	J. Clausen 1951	H	California
<i>fremontii</i>	14	" "		
<i>jonesii</i>	14	" "		
<i>leucopappa</i>	14	" "		
<i>munzii</i>	14	" "		
<i>platyglossa</i>	14	" "	H	
$x = 8$				
<i>carnosa</i>	16	" "		
<i>gaillardoides</i>	16	" "		
<i>glandulosa</i>	16	" "	H	W: N. America
<i>heterotricha</i>	16	" "		California
<i>hieracioides</i>	16	" "		
<i>pentachaeta</i>	16	" "		
<i>septrionalis</i>	16	" "		
<i>paniculata</i>	32	" "		

# HOLOZONIA (LAGOPHYLLA) $x = 7$

<i>filipes</i>	14	Johansen 1933b		California
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# LAGOPHYLLA $x = 7$

<i>ramosissima</i> & 2 spp,	14	Johansen 1933b	—	W: N. America
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# HEMIZONIA $x = (7), 9-14$

$x = 9$				
<i>kelloggii</i>	18	J. Clausen 1951	—	California
<i>pallida</i>	18	" "		
<i>pungens</i>	18	" "		
$x = 10$				
<i>angustifolia</i>	20	" "		
<i>halliana</i>	20	" "		
$x = 11$				
<i>lobbii</i>	22	" "		
<i>mohavensis</i>	22	" "		
<i>pentactis</i>	22	" "		
<i>parryi</i>	22, 24	" "		
$x = 12$				
<i>arida</i>	24	" "		
<i>australis</i>	24	" "		
<i>clementina</i>	24	" "	H	
<i>fasciculata</i>	24	" "	H	
<i>greeneana</i>	24	" "		
<i>minthonnii</i>	24	" "		

# HEMIZONIA (cont.)

<i>paniculata</i>	24	J. Clausen 1951	—	California
<i>ramosissima</i>	24	" "	—	"
$x = 13$				
<i>fitchii</i>	26	" "	—	"
<i>floribunda</i>	26	" "	—	"
$x = (7), 14$				
<i>calyculata</i>	28	" "	—	"
<i>clevelandii</i>	28	" "	—	"
<i>congesta</i>	28	" "	—	"
<i>lutescens</i>	28	" "	—	"
<i>luzulaefolia</i>	28	" "	—	"
<i>multicaulis</i>	28	" "	—	"
<i>tracyi</i>	28	" "	—	"

# GALINSOGA $x = 8$ (9)

<i>parviflora</i>	{ 16	Covas & S. 1946	—	S. Amer. (Eur)
	16	Haskell & M. 1952	—	" "
<i>ciliata</i>	32	" "	—	" "
<i>as quadriradiata</i>	36	Reese 1952a	—	" "

# HELIOPSIS $x = 8$

<i>helianthoides (laevis)</i>	32	Cooper & M. 1935	H	E: N. America
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# DAHLIA $x = 8, 18$

<i>coccinea</i>	Fire D.	32	Lawrence 1929	—	Mexico
<i>coronata</i>		32	" "	—	"
<i>imperialis</i>		32	" "	—	"
<i>maxonii</i>		32	" "	—	Mex., Guat.
<i>variabilis</i>	Garden D.	64	" 1931a	HRV	cult
<i>merckii</i>		36	" 1931b	—	Mexico

# THELESERMA $x = 9, 11$

<i>burridgeanum (hybridum)</i>	18	Bilquez, D. 1951	H	Texas
<i>megapotamicum</i>	22	Schnack & C. 1947	—	Temp. S. Amer.

# PARTHENIUM $x = (9) 18$ (Apomixis)

<i>incanum</i>	Mariola	{ 36	Botschanzewa 1933	—	W: N. America
		54, 72, 90	Stebbins & K. 1944	—	
<i>argentatum</i>	Mex. Rubber	{ 36 + 0-2B	" "	—	
	Guayule	54, 72	" "	—	
		+ 0-2B	Catcheside 1950	Ru	Texas, Mexico
		108-111			

# XANTHIUM \* $x = (9) 18$

<i>cavendishii</i>		36	Covas & S. 1946	—	N. & S. Amer.
<i>italicum</i>	& 2 spp.	36	Symons 1926	M	China, Japan
<i>strumarium</i>	Bur Weed	36	M. Ishikawa 1916	MO	Cosmop.
<i>spinsum</i>		{ 36	Covas & S. 1946	—	"
		36	Heiser & W. 1948	—	

# ECHINACEA (RUDBECKIA) $x = 11$

<i>purpurea</i>	Purple Cone-flower	22	Battaglia 1947a	H	S: U.S.A.
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# ECLIPTA $x = 11$

<i>erecta</i>		22	Singh 1951	—	Cosmop. Trop.
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<b>HETEROSPERMUM</b>		11				
<i>xanthi</i>		22	Gelin 1934			California
<b>LEPTOSYNE (COREOPSIS)</b>		$x = 12$				
<i>bigelowii</i>		24	Gelin 1934	H		California
<i>maritima</i>	Sea Dahlia	24	" "	H		
<b>ZINNIA</b>		$x = 12$				
<i>elegans</i>		24	Ishikawa 1916	H		Mexico
<i>pauciflora</i>		24	Schnack & C. 1947	H		Mex., S. Amer.
<b>COSMOS (BIDENS)</b>		$x = 12$				
<i>bipinnatus</i>		24	Sugiura 1936b	H		Mexico
<i>diversifolius (dahlioides)</i>		24	Gelin 1934	H		
<i>sulphureus</i>		24	Sugiura 1936b	H		
<i>atrosanguineus</i>		48	Lawrence 1929	H		
<b>BIDENS</b>		$x = 12$				
<i>andicola</i>		24	Covas & S. 1946			Ecuador
<i>cernua</i>	Bur Marigold	24	Lewitzky, T. 1937			N. Temp.
<i>ferulaefolia</i>		24	Gelin 1934	H		Mexico
<i>chinensis (pilosa)</i>		48		H		S. America
<i>heterophylla</i>		48				W: N. Amer., Mexico
<i>radiata</i>		48	Hagerup 1944			Eur., Siberia
<i>subalternans</i>		48	Covas & S. 1946			W. I., S. Amer.
<i>tripartita</i>		48	Lewitzky, T. 1937			Eur., Siberia
<i>pilosa (leucantha)</i>		72	Gelin 1934, Covas & S. 1946	H		W. I., S. Amer.
<b>COREOPSIS</b>		$x = 12, 13, 14$				
<i>auriculata</i>		24	Bilquez, D. 1951	H		S: U.S.A.
<i>tinctoria (bicolor)</i>		24	Gelin 1934	H		C: U.S.A.
<i>lanceolata</i>		24, 48	Bilquez, D. 1951	H		E: U.S.A.
<i>cardaminifolia</i>		{ 24	" "	H		S: U.S.A.
		{ 26	Gelin 1934			
<i>drummondii (picta)</i>		26	" "	H		Texas
<i>grandiflora (floribunda)</i>		26	" "	H		S: U.S.A.
<i>tripteris</i>		26	" "	—		U.S.A.
<i>pubescens</i>		28	Snoad 1952	H		S: U.S.A.
<b>AMBROSIA</b>		$x = 12, 17, 18$				
<i>trifida</i>	Ragweed	24	Cooper & M. 1935	—		N. America
<i>bidentata</i>		34	K. L. Jones 1943			
<i>artemisifolia (elatiar)</i>		36				
<i>trifida</i> $\times$ <i>elatiar</i>		30				<i>expt.</i>
<i>psilostachya</i>		100-104	Heiser & W. 1948	—		N. America
<b>SPIRANTHES</b>		$x = 13$				
<i>decumbens</i>		26	Covas & S. 1947	—		S. America
<b>HIDALGOA</b>		$x = 15$				
<i>werklei</i>	Climbing Dahlia	30	Lawrence 1931b	H		Costa Rica
<b>GUIZOTIA</b>		$x = 15$				
<i>abyssinica</i>	Nigerseed	30	Richharia & K. '38	O		Trop. Africa

<b>RUDBECKIA</b> $x = 16, 19$ (Apomixis)					
<i>amplexicaulis</i>		32	Battaglia 1947a	H	C. & S. U.S.A.
<i>bicolor</i>		38	" "	H	S: U.S.A.
<i>hirta</i>	Black-eyed Susan	38	" 1947b	H	Canada, U.S.A.
<i>laciniata</i>	Cone Flower	38, 76	" 1947a	H	E: N. America
<i>speciosa</i>		76	" "	H	" "
<b>TITHONIA</b> $x = 17$					
<i>rotundifolia</i>		34	Heiser 1948	H	Mex., C. Amer.
<i>tagetifolia</i>		34	Bilquez, D. 1951	H	Mexico
<b>VERBESINA</b> $x = 17$					
<i>encelioides</i>		34	Covas & S. 1946	H	Fla.—Mex.
<i>subcordata</i>		34	Schnack & C. 1947	—	Brazil
<b>HELIANTHUS</b> $x = 17$					
<i>grosse-serratus</i>	Sawtooth S.	32	Cooper & M. 1932	H	E: U.S.A.
<i>annuus</i>	Sunflower	34	Geisler 1931	HO	<i>cult</i> (N. Amer.)
		(68)	Rybin 1939		
<i>bolanderi</i>		34	Heiser & W. 1948	—	California
<i>giganteus</i>	Giant S.	34	Geisler 1931	HO	Can., C: U.S.A.
<i>maximiliani</i>		34	" "	H	C: U.S.A.
<i>microcephalus</i>		34	" "	H	N. America
<i>occidentalis</i>		34	" "	H	C: U.S.A.
<i>salicifolius</i> ( <i>orygalis</i> )		34	" "	H	"
<i>argophyllus</i>		34	Heiser 1948	H	Texas
<i>jaegeri</i>		34	" "	—	California
<i>petiolaris</i>	Prairie S.	34	" "	H	W: N. America
<i>ruderalis</i>	Wild S.	34	Klimochkina 1940	—	N. America
<i>strumosus</i>	Woodland S.	102	Wagner 1932	H	"
<i>rigidus</i>		102	" "	H	W: N. America
<i>tuberosus</i>	Jerusalem Art.	102	" "	R	E: N. America
<i>tub. × annuus</i>		68	Shchibra 1936	—	<i>expt</i>
<b>BALSAMORRHIZA</b> $x = 19$					
<i>careyana</i>		38	Weber 1946	—	W: N. America
<i>hookeri</i>	Balsam Root	38	" "	HR	"
<i>incana</i>		38	" "	R	"
<i>rosea</i>		38	" "	—	"
<i>sagittata</i>	Oregon S.	38	" "	GHR	"
<i>serrata</i>		38	" "	—	"
<b>WYETHIA</b> $x = 19$					
<i>amplexicaulis</i>		38	Weber 1946	H	W: N. America
<i>angustifolia</i>		38	" "	H	"
<i>helenioides</i>		38	" "	—	"
<i>mollis</i>		38	" "	—	"

### TRIBE III: ASTEREAE

<b>ASTRANTHIUM (BELLIS)</b> $x = 4$					
<i>integrifolium</i>		8	Baldwin 1941b	H	N. America.
<b>ASTER</b> * $x = 5, 8, 9$					
<i>amethystinus</i>		10	Wetmore & D. 1939	H	E: U.S.A.
<i>amplexicaulis</i>		10	" "	"	"
<i>multiflorus</i>		10	Delisle 1937	H	N. America

# ASTER (cont.)

<i>novae-angliae</i>		10	Delisle 1937	H	N. America
<i>sericeus</i>		10	Annen 1945	H	"
<i>subulatus</i>		10	Wetmore & D. 1939	—	"
<i>squamatus</i>		20	Schnack & C. 1947	—	S. America
<i>x = 8</i>					
<i>adscendens</i>		16, 32	J. Clausen <i>et al.</i> 1940	—	N. America
<i>x = 9</i>					
<i>alpinus</i>		18	Sakai 1935	H	North Reg.
<i>anomalus</i>		18	Avers 1953	—	E: N. Amer.
<i>fastigiatus</i>		18	Tahara & S. 1926	—	Siberia
<i>glehnii</i>	& 8 spp.	18	Shimotomai & H. '42	H	Japan
<i>montevidensis</i>		18	Schnack & C. 1947	—	Brazil, Arg.
<i>scaber</i>		18	Shimotomai & H. '42	H	Japan
<i>texanus</i>		18	Avers 1953	—	E: N. Amer.
<i>tripolium</i>	Sea Aster	18	Shimotomai & H. '42	—	Eur., N. Afr., N Asia
<i>ageratoides</i>		18, 19, 36	" "	—	Himalayas
<i>cordifolius</i>		18, 36	Avers 1953	H	E: N. Amer.
<i>sagittifolius</i>		18, 36	" "	H	"
<i>shortii</i>		18, 36	" "	H	"
<i>amellus</i>		18	Annen 1945	H	Eur., Asia
garden forms		66, 76	" "	H	<i>cult</i>
<i>thomsonii</i>	(3x)	27	" "	H	Himalayas
<i>alpinus</i>	Rock Aster	36	S. & S. 1933	H	Alps—Altai
<i>altaicus</i>	& 2 spp.	36	Shimotomai & H. '42	H	Persia—N. Asia
<i>drummondii</i>		36	Avers 1953	H	E: N. Amer.
<i>lowrieanus</i>		36	" "	H	"
<i>trinervius</i>		36	Tahara & S. 1926	H	Himalayas
<i>undulatus</i>		36	Avers 1953	H	E: N. Amer.
<i>frikartii</i>		52, 54	Annen 1945	H	<i>cult</i>
<i>flaccidus</i>		54	S. & S. 1938	—	Altai
<i>laevis</i>	Michaelmas D.	54	Revell 1945*	H	E: U.S.A.
<i>tataricus</i>		54	Shimotomai & H. '42	H	Sib., China
<i>ciliolatus</i>		72	Avers 1953	—	N: N. Amer.

## GRINDELIA *x = 6*

<i>chiloensis</i>		12	Covas & S. 1946	H	Argentine
<i>pulchella</i>		12	" "	—	Chile
sp. aff. <i>chiloensis</i>		24	Schanck & C. 1947	—	Argentine
<i>camporum</i>		24	Heiser & W. 1948	—	N. America

## FELICIA *x = 6, 8, 9*

<i>bergeriana</i>		12	Bilquez, D. 1951	H	S. Africa
<i>amelloides</i>	Blue Daisy	16	Sugiura 1936b	H	"
<i>tenella</i> ( <i>fragilis</i> )		16	Harling 1951b	H	"
<i>adfinis</i>		18	Bilquez, D. 1951	H	"

## BACCHARIS *x = 9*

<i>genistelloides</i>		18	Bowden 1945a	H	Peru, Brazil
<i>genistifolia</i>		18	" "	—	Brazil
<i>halimifolia</i>	Groundsel Bush	18	" "	H	E: U.S.A.
<i>phyteumoides</i>		18	" "	—	Brazil
<i>pingraea</i>		{ 18	" "	—	Chile
		{ 18	Covas & S. 1946	—	
<i>lanceolata</i>		18	" "	—	Peru

<b>BELLIUM</b> $x = 9$				
<i>bellioides</i>	18	Negodi 1935	H	Medit.
<b>BOLTONIA (ASTEROMOEIA)</b> $x = 9$				
<i>indica</i>	18	Tahara & S. 1926	H	Japan
<b>CALLISTEPHUS</b> $x = 9$				
<i>sinensis</i> China Aster	18	Tahara & S. 1926	H	Sib., China
<b>GRANGEA</b> $x = 9$				
<i>maderaspatana</i>	18	Mitra 1947		Tr. Asia & Afr.
<b>HETEROTHECA</b> $x = 9$				
<i>grandiflora</i>	18	Heiser & W. 1948		W: N. Amer.
<b>LINOSYRIS (ASTER)</b> $x = 9$				
<i>vulgaris</i> ( <i>A. linosyris</i> )	18	Annen 1945	H	Europe
<b>PSEUDOBACCHARIS</b> $x = 9$				
<i>retamoides</i>	18	Schnack & C. 1947	—	Argentina
<b>BELLIS</b> $x = 9$				
<i>annua</i>	18	Negodi 1935		N.W. Medit.
<i>perennis</i> Daisy	18	" "	H	Europe
<i>sylvestris</i>	36, 54	" T. 1937		Medit.
<b>ERIGERON</b> $x = 9, 16$ (Polyploids Apomictic)				
<i>acris</i>	18	L. & L. 1942		N. Temp.
<i>alpinus</i>	18	Chiarugi 1927b	H	Alpine & Arctic
<i>aurantiacus</i> Orange Daisy	{ 18	Bergman 1942	H	Turkestan
	18	Harling 1951b		
<i>aureus</i>	18	" "	H	W: N. Amer.
<i>borealis</i>	18	Chiarugi 1927b	—	Europe
<i>canadensis</i> Fleabane	18	Okabe '34, Harling 1951b	H	Cosmop.
<i>frigidus</i>	18	Harling 1951b	H	Sierra Nevada
<i>glabellus</i>	18	" "	H	N. America
<i>polymorphus</i>	18	Reese 1953	—	North & Arctic
<i>uniflorus</i>	18	Bøcher & L. 1950	H	Arctic
<i>pulchellus</i>	18	Harling 1951b	H	Caucasus
<i>macranthus</i>	{ 18	Bergman 1942	H	Rocky Mtns.
	26?	Holmgren 1919		
<i>glabratus</i>	{ 18	Sakai 1934		Switzerland
	36	M. & S. 1935		
<i>annuus</i>	27	Okabe 1934		N. America
<i>karvinskianus</i>	{ 32	Battaglia 1950a	H	Mex., C. Amer.
	36	Fagerlind 1947		
<i>unalaschkense</i>	36	Flovik 1940		Arctic
<i>bonariensis</i>	54	Holmgren 1919		S. America
<i>compositus</i>	54, 63	Bøcher & L. 1950	H	W: N. Amer.
<b>GYMNASTER</b> $x = 9$				
<i>pygmaeus</i>	18	Shimotomai & H. '42	—	Japan
<i>savatieri</i>	18, 36	Inoue 1952	—	"
<i>koraiensis</i>	144	Shimotomai & H. '42	—	Korea

# **KALIMERIS** $x = 9$

<i>miqueliana</i>	18	Shimotomai & H. '42	—	Japan
<i>pinnatifida</i>	18, 63, 64, 66	" "	—	"
<i>indica</i>	54	" "	—	"
<i>incisa</i>	72	Shimotomai & I. '51	H	Siberia
<i>yomena</i>	63 ± 9	" "	H	cult

# **SOLIDAGO** $x = 9$

<i>canadensis</i>	18	Brock unp.	H	E: N. America
<i>chilensis</i>	18	Covas & S. 1946	—	Argentina
<i>elongata</i>	18	Clausen <i>et al.</i> 1940	H	W: N. America
<i>multiradiata</i>	18	" "	—	" "
<i>rugosa</i>	18	Goodwin 1937	H	E: N. America
<i>virgaurea</i>	Golden Rod	18 Scheerer, L. & L. '42	H(Ru)	Europe
<i>sempervirens</i>	18, 36	Goodwin 1937	H	E: N. America

# **HETEROPAPPUS** $x = (9), 18$

<i>arenarius</i>	36	Shimotomai & H. '42	—	Japan, Mongolia
<i>hispidus</i>	36	" "	—	" "
<i>leptocladus</i>	36	" "	—	" "

# **GUTIERREZIA** $x = 12$

species	24	Covas & S. 1947	—	S. America
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## **TRIBE IV: INULEAE**

# **ODONTOSPERMUM (ASTERISCUS)** $x = 5$

<i>spinosum</i>	10	Tongiorgi 1935	—	Medit.
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# **BUPHTHALMUM (TELEKIA)** $x = 5$

<i>grandiflorum</i>	Ox-eye	20	Sakai 1935	H	S. Europe
<i>salicifolium</i>		20	Tongiorgi 1935		" "
<i>speciosum</i>		20	" "		S. Eur., W. Asia

# **TESSARIA** $x = 5$

<i>absinthoides</i>		20	Covas & S. 1946		Chile
<i>camphorata</i>	Stinkweed	20	Baldwin & S. 1955a	—	S. & E: U.S.A., W.I.
<i>foetida</i>	Stinking Fleabane	20	" "	—	" "
<i>purpurascens</i>		20	" "	—	S: U.S.A., Trop. Amer.

# **PULICARIA (INULA)** $x = 5, 9$

<i>vulgaris</i>		18	Wulff 1937b	—	Temp.
<i>crispa</i>		20	Singh 1951	—	N. & Trop. Afr., Arabia, India
<i>dysenterica</i>	Fleabane	20	Rodolico 1933	—	Medit.

# **INULA** $x = 5, 8, 9$

<i>cordata</i>		16	Tongiorgi 1935	—	Asia Minor
<i>ensifolia (bubonium)</i>		16	Reese 1953	H	Eur., N. Asia
<i>grandiflora</i>		16	S. & S. 1940	H	Cauc., Himal.
<i>hirta</i>		16	Tongiorgi 1942	H	S. Europe
<i>orientalis (glandulosa)</i>		16	" "	H	Caucasus
<i>thapsoides</i>		16	" "	H	Cauc., N. Persia

# INULA (cont.)

<i>britannica</i>		{ 16, 24	Okabe 1937	H	Eur., Asia
		32	Pólya, L. & L. 1948	—	
<i>conyza</i>	Ploughman's Spikenard	32	Tongiorgi 1942	—	Eur., W. Asia
<i>crithmoides</i>	Golden Samphire	18	Castro & F. 1946		
<i>indica</i>		18	Singh 1951	—	India
<i>viscosa</i>		18	Rodolico 1933	—	S. Europe
<i>helenium</i>	Elecampane	20	Rutland 1941	MV	N. Temp.
<i>hookeri</i>		20	Tongiorgi 1942	H	Himalayas
<i>racemosa</i>		20	" 1935	H	Himal., W. China

# GNAPHALIUM $x = 7$

<i>luteo-album</i>	Jersey Cudweed	14	Wulff 1937b		Cosmop.
<i>uliginosum</i>		14	" "		S. Eur., W. Asia
<i>supinum</i>		28	Rutland 1941		N. Temp. & Arct.
<i>norvegicum</i>		56	L. & L. 1944b		
<i>sylvaticum</i>		c. 58	S. & S. 1938	H	Eur., "Cauc.", N. America

# HELICHRYSUM $x = 7$

<i>arenarium</i>		{ 14	Tongiorgi 1935	—	Eur., Cauc.
		28	Scheerer 1939		
<i>bracteatum</i>	Strawflower	28	Tongiorgi 1942	H	Australia
<i>serotinum</i>		28	Lorenzo-A. & G. '50	—	Europe
<i>stoechas</i>		28	" "	—	W. Medit.
<i>rhianschanicum</i>		28	Tongiorgi 1935	H	W. China

# ANAPHALIS $x = 7$

<i>margaritacea</i>	Pearly Everlasting	28	Maude 1939	H	N. America
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# FILAGO $x =$

<i>arvensis</i>		28	Wulff 1937b		Eur., N. Asia
<i>germanica</i>	Cudweed	28	" "		Eur., S.W. Asia
<i>minima</i>		28	Reese 1952a		Eur., Siberia
<i>spatulata</i>		28	Hagerup 1941b		Eur., N. Afr., S.W. Asia

# ANTENNARIA $x = 7$ (Apomictic)

<i>dioica</i>	Cat's Ear	28, 34	Bergman 1944	H	Eur., N. Asia, N. America
<i>neglecta</i>		28	Stebbins 1932		N. America
<i>plantaginifolia</i>		28	" "		
<i>solitaria</i>		28	" "		
<i>bruinerdii</i>		42	" "		
<i>carpathica</i>		40, 42	Bergman 1935b		N. Temp.
<i>magellanica</i>		56	" 1937		Magellan
<i>neodioica</i>		c. 52	Stebbins 1932		N. America
<i>glabrata</i>		63	Böcher & L. 1950		
<i>alpina (intermedia)</i>		84	Bergman 1935b	H	N. Temp.
<i>canadensis</i>		c. 84	Stebbins 1932		N. America
<i>fallax</i>		84	" "		
<i>parlinii</i>		84	" "		

# HELIPTERUM $x = 7, 11$

<i>roseum</i>	14	Bilquez, D. 1951	H	Australia
<i>manglesii</i>	22	" "	H	"

# LEONTOPODIUM $x = 7? 13$

<i>alpinum</i> Edelweiss	26	Sakai 1935	H	Europe
<i>kurilense</i>	26	" 1934	H	Japan
<i>campestre</i>	49	S. & S. 1938	—	Siberia

# AMMOBIUM $x = 13$

<i>alatum</i> Everlasting	26	Avanzi 1948	H	Australia
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# EVAX $x = 13$

<i>umbellata (pygmaea)</i>	26	Tongiorgi 1942		Medit.
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## TRIBE V: CYNAREAE

# XERANTHEMUM : 6, 10

<i>annuum</i>	12	Poddubnaja 1931	H	Medit.
<i>squarrosum</i>	12	" "		
<i>cylindraceum</i>	20	" "		

# CENTAUREA \* $x = 7, 8, 9, 10, 11, 12, 13$

$x = 7, 8, 9$

<i>scabiosa</i>	{	14 Dark 1945 *		
		20 Roy 1937	—	Europe
	20 + 0-13B	Fröst 1948		
<i>iberica</i>	16	Poddubnaja 1931	—	Spain
<i>solstitialis</i> St. Barnaby's Th.	16	Heiser & W. 1948	—	S. & S.E. Eur., W Asia
<i>diffusa</i>	18	Moore & F. 1954	—	Eurasia
<i>macrocephala</i>	18	Poddubnaja 1931	H	Armenia
<i>ossica</i>	18	" "	—	Caucasus
<i>ovina</i>	18	" "	—	Sib., Asia Minor
<i>maculosa</i>	36	Moore & F. 1954	—	Europe

$x = 10, 11, 12, 13$

<i>calciatrapa</i>	20	Vignoli 1945b	—	Eur., N. Afr., Temp. Asia
<i>macroacantha</i>	20	" "	—	Cauc., Asia Min.
<i>reflexa</i>	20	Poddubnaja 1931	—	Cauc., Armenia
<i>salonitana</i>	20	" "	—	E. Europe
<i>aspera</i>	{	20 Lorenzo-Andreu 1951	—	S. Europe
	22	Maude 1939		
<i>melitensis</i>	22	Covas & S. 1947	—	Eur., S. Amer.
<i>nervosa</i>	22	Favarger 1953	H	S. Eur. mtns.
<i>plurigia</i>	22	Poddubnaja 1931	—	Europe
<i>cyanus</i> Cornflower & 6 spp.	24	Fritsch 1935	H	Eur., Cauc.
<i>repens</i> Russ. Knapweed	26	Moore & F. 1954	—	Asia

$x =$  various

<i>ruthenica</i>	30	Poddubnaja 1931	H	Cauc., Siberia
<i>fischeri</i>	40	" "	—	Eur., S.W. Asia
<i>jacea</i> & 2 spp.	44	Roy 1937, Wulff '37b	—	Europe
<i>bella</i> & 2 spp.	c. 55	Poddubnaja 1931	—	Caucasus
<i>collina</i>	60	Roy 1937	—	Medit.

<b>PHAEOPAPPUS</b> $x = 8$				
<i>steveri</i>	16	Poddubnaja 1931	—	Caucasus
<b>CARDUUS</b> $x = 8, 11$				
<i>crispus</i>	16	Poddubnaja 1931	—	Europe
<i>nutans</i> Musk Thistle	16	" "	—	Eur., Temp. Asia
<i>acanthoides</i>	22	" "	—	Eur., Cauc.
<i>defloratus</i>	22	Reese 1952a	—	Europe
<b>LEUZEA</b> $x = 9$				
<i>conifera</i>	18	Lorenzo-Andreu & G. H 1950		Medit.
<b>SAUSSUREA</b> $x = 9, 13$				
<i>brachycephala</i>	26	M. & S. 1935	—	Japan
<i>sagitta</i>	26	" "	—	"
<i>riederi</i>	39	" "	—	Kamchatka
<i>alpina (affinis)</i>	{ 36?	Ishikawa 1916		
	54	L. & L. 1944b	—	N. Eurasia
<b>CARLINA</b> $x = 10$				
<i>acanthifolia</i>	20	Arata 1944	H	S. Eur., W. Asia
<i>acaulis</i>	20	" "	H	S. Europe
<i>corymbosa</i>	20	" "	—	Medit.
<i>gummifera</i>	20	" "	—	"
<i>lanata</i>	20	" "	—	"
<i>vulgaris</i> Carline Thistle	20	" "	—	Eur., N. Asia
<b>CIRSIIUM (CNICUS) *</b> $x = 10, 17$				
$x = 10$ (New World)				
<i>discolor</i>	20	Ownbey 1951b	H	E: N. America
<i>muticum</i> Swamp Thistle	20	" "	H	"
$x = 17$ (Old World)				
<i>acaule</i>	34	Wulff 1937b	—	Europe
<i>arvense</i>	34	Ehrenberg 1945	—	Temp. Eurasia
<i>eriphorum</i>	34	Reese 1952a	—	Eur., Asia Min.
<i>heterophyllum</i>	34	Wulff 1937b	—	Eur., N. Asia
<i>oleraceum</i>	34	" "	—	Europe
<i>japonicum</i> & 15 spp.	34	Aishima 1934	—	Japan
<i>palustre</i>	34	Poddubnaja 1931	—	Eur., N. Asia
<i>vulgare (lanceolatum)</i>	68	" "	H	Eurasia
<i>nipponicum</i> & 10 spp.	68	Aishima 1934	—	Japan
<i>alpicolum</i> & 2 spp.	102	" "	—	"
<b>CNICUS</b> $x = 11$				
<i>benedictus</i> Blessed Thistle	22	Vaarama 1947a	HMSp	Medit., Cauc.
<b>STEVIA</b> $x = 11$				
<i>rabaudiana</i> Kaa He-e	22	EKJ	SuV	Paraguay
<b>SERRATULA</b> $x = 11, 15$				
<i>tinctoria</i>	22	Maude 1940	—	N. Eur., Asia
<i>radiata</i> Sawwort	60	Poddubnaja 1931	—	Eur., Cauc.
<b>ATRACTYLIS</b> $x = 12$				
<i>lancea</i>	24	Suzuka & K. 1949	—	Japan
<i>lyrata</i>	24	" "	—	"
<i>ovata</i>	24	Suzuka 1950a	—	"

<b>CARTHAMUS</b> $x = 8, 12$						
<i>oxyacantha</i>		24	Kishore 1951	—		Cauc., W. Asia
<i>tinctorius</i>	Safflower	24	Poddubnaja 1931	DO		O.W. Tropics
<i>lanatus</i>		64	" "	O		Eur.—Persia
<b>COUSINIA</b> $x = 13$						
<i>carduiiformis</i>		26	Poddubnaja 1931	—		Caucasus
<b>CRUPINA</b> $x = 14, 15$						
<i>crupinastrum</i>		28	Poddubnaja 1931	—		Medit.
<i>vulgaris</i>		30	" "	H		"
<b>JURINEA</b> $x = 15$						
<i>cyanoides</i>		30	Poddubnaja 1931	—		'S. Eur., Cauc.
<b>AMBERBOA</b> $x = 8$						
<i>moschata</i>		32	Poddubnaja 1931	—		S.W. Asia
<b>ECHINOPS</b> $x = 8$						
<i>sphaerocephalus</i>	Globe Thistle	32	Poddubnaja 1927	H		Med.—N. Asia
<b>ARCTIUM</b> $x = 16, 18$						
<i>minus</i>	Lesser Burdock	32	Wulff 1937b	—		Europe
<i>lappa</i>	Great B., Gobo	32	Sugiura 1936	M		"
	(Japanese)	36	Nakajima 1936	R		Japan
<i>tomentosum</i>		36	Poddubnaja 1931	—		Europe
<i>vulgare</i>	Wood B.	36	L. & L. 1944b	—		"
<b>CYNARA</b> $x = 17$						
<i>cardunculus</i>	Cardoon	34	Covas & S. 1947	V		Medit.
<i>scolymus</i>	Globe Artichoke	34	E.K.J.	V		"
<b>ONOPORDUM</b> $x = 17$						
<i>acanthium</i>	Scotch Th.	34	Poddubnaja 1931	—		Eur., W. Asia
<b>SILYBUM (CARDUUS)</b> $x = 17$						
<i>marianum</i>	St. Mary's Th.	34	Heiser & W. 1948	H		Europe

#### TRIBE VI: SENECTIONEAE

<b>EMILIA (CACALIA)</b> $x = 5$						
<i>sagittata</i>	Flora's Paintbrush	10	Afzelius 1924	H		India
		10	Baldwin & S. 1948b	H		
<i>sonchifolia</i>		10	Baldwin 1946a	H		Tr. Afr. & Asia
<i>coccinea</i>		20	" "	H		Trop. O.W.
sp.		20	Baldwin & S. 1949b	H		W. Africa
<b>SENECIO (CINERARIA)*</b> $x = 5, 9, 11, 12, 23$						
$x = 5$						
<i>discifolius</i>		10	Afzelius 1924	—		Trop. Africa
<i>elegans</i>	Purple Ragwort	20	" "	H		S. Africa
<i>isatideus</i>		20	Goldsmith & K. '48	—		"
<i>pendulus</i>		20	Okabe 1931	—		Arabia
<i>scandens</i>		20	Afzelius 1924	H		China, Japan
<i>squalidus</i>	Oxford R.	20	" "			Sicily, S. Italy
7 species		20	" "	1949		
<i>tomentosus</i>		20	Snoad unp.	H		S. Africa

# SENECIO (cont.)

<i>abrotanifolius</i>		40	Afzelius 1924	H	C. Europe
<i>adonidifolius</i>		40	" "	H	S. France, Spain
<i>chordifolius</i>		40	" "	H	S. Africa
<i>cineraria</i>	Dusty Miller	40	" "	H	Medit.
<i>doria</i>		40	" "	H	S. & C. Europe
<i>filaginoides</i>		40	Covas & S. 1947	—	Chile
<i>gillesianus</i>		40	" 1946	—	"
<i>hualtata</i>		40	Schnack & C. 1947	—	"
<i>incanus</i>		40	Favarger 1949b	H	Eur. Alps
<i>jacobaea</i>	Tansy Ragwort	40	Afzelius 1924	—	Europe
<i>nemorensis</i>		40	M. & S. 1935	—	Eur., N. Asia
<i>viscosus</i>		40	Afzelius 1924	—	Eur., Asia M.
<i>vulgaris</i>	Groundsel	40	" "	—	Cosmop.
23 species		40	" " 1949		

<i>echinatus</i>		60	" 1949	—	Canaries
<i>heritieri</i>		60	" 1924	H	"
<i>oxyriifolius</i>		60	" 1949	—	S. Africa
<i>petasites</i>	Calif. Geranium	60	" 1924	H	Mexico
<i>webbii</i>		60	" 1949	—	Canaries
<i>soongaricus</i>		60	" "	—	C. & W. Asia

<i>doronicum</i>	Leopard's Bane	80	" "	H	C. & S. Europe
<i>uspallatensis</i>		c. 80	Schnack & C. 1947	—	Chile
<i>roberti-friesii</i>		c. 180	Afzelius 1924	—	cult

## x = 9, 11, 12

<i>arenarius</i>		18	Afzelius 1949	—	Cape Prov.
<i>cladobotrys</i>		24	S. & S. 1940	—	Caucasus
<i>palmatus</i>		{ 36	Suzuka & K. 1949	—	C. & E. Asia
		{ 80	Afzelius 1949	—	
<i>congestus (palustris)</i>		48	" 1924	—	Eur., N. Asia
<i>caucasica</i>		44	S. & S. 1940	—	Caucasus
<i>resedifolius</i>		46	" 1938	—	Siberia
		46	" 1938		
<i>integrifolius (campestris)</i>		{ 48, 90	" 1941	—	N. Temp.
		{ 48	Rutland 1941		
<i>spathulifolius</i>		48, 50	Afzelius 1949	—	W. Europe
<i>alpestris</i>		48, 50	" "	—	Europe

## NOTONIA x = 10

<i>grandiflora</i>		20	Ganesan 1939	H	India
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## GYNURA (CRASSOCEPHALUM) x = 10

<i>aurantiaca</i>	Velvet Tree	20	Afzelius 1924	H	Java
<i>rubens</i>		20	" "	—	Trop. Africa
<i>crepidioides</i>		40	" "	—	"

## KLEINIA x = 10

<i>articulata</i>	Candle Plant	20	Afzelius 1949	H	S. Africa
<i>cylindrica</i>		20	" "	H	"
		c. 100	" "		cult

## OTHONNA x = 10

<i>carnosa</i>		20	Afzelius 1924	H	S. Africa
<i>coronopifolia</i>		20	" 1949	—	Cape Prov.

<b>ERECHTITES</b> $x = 10$				
<i>hieracifolia</i>	40	G. O. Cooper 1936	—	N. & S. Amer.
<b>CACALIA</b> $x = 10, 26$				
<i>suaveolens</i>	40	Afzelius 1924	—	N. America
<i>reniformis</i>	50	" "	—	"
<i>aconitifolia</i>	52	" 1949	—	China
<i>hastata</i>	60	" "	—	Eurasia
<i>roborowskii</i>	60	" "	—	China
<b>MALLOTOPUS</b> $x = 9$				
<i>japonicus</i>	18	M. & S. 1935	—	Japan
<b>TRIDAX</b> $x = 9$				
<i>trilobata</i>	18	Hjelmqvist 1951	H	Mexico
<i>procumbens</i>	36	Raghavan & V. '41b	—	Trop. America
<b>LIGULARIA</b> $x = 24, 29, 30$				
<i>altaica</i>	48	S. & S. 1938	—	Altai
<i>hodgsonii</i>	58	Afzelius 1949	—	China
<i>macrophylla</i>	58	" 1924	H	Caucasus
<i>clivorum</i> & 6 spp.	60	" 1924, 1949	H	China, Japan
<i>tussilaginea</i> ( <i>kaempferi</i> )	60	Battaglia 1940	H	Japan
<b>PETASITES (TUSSILAGO)</b> $x = 26, 29, 30$				
<i>fragrans</i> Winter Heliotrope	52	Maude 1940	H	W. Medit.
<i>hybridus</i> Butterbur	60	Langlet 1936	HM	Eurasia
<i>albus</i>	60	Scheerer 1939	—	"
<i>frigidus</i>	60	Flovik 1940	—	Arct., Temp.
<i>niveus</i>	60	Langlet 1936	—	Europe
<i>spurius</i>	60	" "	—	"
<i>japonicus</i>	87	Yamamoto, K. 1931	HV	Sakhalin
<b>TUSSILAGO (PETASITES)</b> $x = 30$				
<i>farfara</i> Coltsfoot	60	Hagerup 1941b	M	Eurasia, N. Afr
<i>japonica</i>	60	Langlet 1936	—	Japan
<b>DORONICUM</b> $x = 30$				
<i>austriacum</i>	60	Weisto 1951	—	Europe
<i>cordatum</i>	60	Lindqvist 1950		
<i>grandiflorum</i>	60	Favarger 1949b		
<i>pardalianches</i>	60	Lindqvist 1950	H	
<i>clusii</i>	120	Weisto 1951	—	C. Eur. mtns.
<i>plantagineum</i>	c. 120	Lindqvist 1950	H	Europe
<b>ARNICA</b> $x = ?$ (Apomixis)				
<i>montana</i>	38	Favarger 1953	M	Eurasia
<i>unalaschensis</i>	c. 40	Sakai 1934	H	Unalaska
	56	L. & L. 1948		
<i>alpina</i>	60	Afzelius 1924	H	N. Reg.
	76	Bøcher & L. 1950		
<b>HOMOGYNE</b> $x = ?$				
<i>alpina</i> Alpine Coltsfoot	c. 135	Langlet 1936	H	Europe

#### TRIBE VII: HELENIEAE

<b>BLENNOSPERMA</b> $x = 7, 9$				
<i>californicum</i>	14	Heiser 1947		California
<i>bakeri</i>	18	" "		

**SCHKUHRIA**  $x = 10, 11$

<i>pinnata</i>	20	Covas & S. 1946	—	Argentina
<i>multiflora</i>	22	Schnack & C. 1947	—	"

**HYMENOXYS** \*  $x = 11, 15$

<i>odorata</i>	22	Speese & B. 1952	—	S.W: U.S.A.
<i>argentea</i> & 11 spp.	30	" "	—	"
<i>acaulis</i>	30, 60	" "	—	"

**TAGETES**  $x = 12$

<i>erecta</i> Afr. Marigold	24 (48)	Eyster 1939	H	Mexico
<i>biflora</i>	48	Covas & S. 1946	—	C. America
<i>mendocina</i>	48	Schnack & C. 1947	—	"
<i>patula</i> French M.	48 (96)	Eyster 1939	H	Mexico
<i>signata</i> ( <i>erecta</i> $\times$ <i>patula</i> )	36 (72)	" "	H	<i>cult</i>

**HELENIUM**  $x = 14, 17$

<i>curtisi</i>	28	Baldwin & S. 1952	—	N. America
<i>autumnale</i> Sneezeweed	34	E.K.J.*	H	E: N. Amer.

**THYMOPHYLLA**  $x = 16$

<i>beleidium</i>	32	Covas & S. 1946	—	C. America
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**FLAVERIA**  $x = 18$

<i>bidentis</i>	36	Covas & S. 1946	—	S. America
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**GAILLARDIA**  $x = 18$

<i>aristata</i> ( <i>grandiflora</i> )	{ 36 72	Cooper & M. 1935 Atwood 1937	H	C: U.S.A.
<i>pulchella</i>	{ 36 34 (68)	Morinaga <i>et al.</i> '29 Schnack 1940	H	S: U.S.A.

**TRIBE VIII: ARCTOTIDEAE**

**GAZANIA**  $x = 5$

<i>rigens</i>	10	La Cour 1945 *	H	S. Africa
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**BERKHEYA**  $x = 7$

<i>adlamii</i>	14	Gelin 1936	H	S. Africa
<i>bergiana</i>	14	" "	—	Rhodesia

**URSINIA (SPHENOGYNE)**  $x = 8$

<i>anethoides</i>	16	Sugiura 1936b	H	S. Africa
<i>anthemoides</i>	16	" "	H	"
<i>speciosa</i>	16	" "	H	"

**ARCTOTIS**  $x = 9$

<i>acaulis</i>	18	Bilquez, D. 1951	H	S. Africa
<i>as scapigera</i>	18	" "	H	
<i>stoechadifolia</i> Afr. Daisy	18	" "	H	"
var. <i>grandis</i>	18	" "		

**VENIDIUM**  $x = 9$

<i>decurrens</i> v. <i>calendulaceum</i>	{ 18 18	Bilquez, D. 1951 Morrison 1952	H	S. Africa
<i>fastuosum</i>	{ 18	Bilquez, D. 1951	H	
<i>as wyleyi</i>	18	" "		"

**TRIBE IX: CALENDULEAE**

**CALENDULA**  $x = 7, 8, 9$

<i>aegyptiaca</i>	Egyptian M.	14	Negodi 1935	DH	Medit., Mesop.
<i>officinalis</i>	Pot Marigold	{ 28	" 1936a	DH	S. Europe
		32	Weddle 1941		
<i>suffruticosa</i>	Shrubby M.	{ 28	Negodi 1936a	H	E. Medit.
		32	Weddle 1941		
<i>arvensis</i>		36	Negodi 1936a	H	Eur., S.W. Asia

**DIMORPHOTHECA**  $x = 9, 10$

<i>aurantiaca</i>	Cape Marigold	18	Harrison, T. 1937	H	S. Africa
<i>pluvialis</i>		18	Bilquez, D. 1951	H	
<i>pseudoaurantiaca</i>		18	Harrison, T. 1937	H	
<i>sinuata</i>		18	Bilquez, D. 1951	H	
<i>ecklonis</i>		20	Harrison, T. 1937	H	
<i>barberiae</i>		38-40	Pienaar unp.	H	

**TRIBE X: ANTHEMIDEAE**

**ARTEMISIA** \*  $x = 8, 9, x_2 = 17$

$x = 8$

<i>mongolica</i>		16	Suzuka 1950b	—	E. Asia
3 species		16	" " 1951		
<i>campestris</i>	Sagewort	{ 16	" " "	M	N. Hemisphere
		18	Weinedel 1928		
		36	Erlandsson 1939		
		36	Clausen <i>et al.</i> 1940b		

$x = 9$

<i>absinthium</i>	Wormwood	18	Weinedel 1928	DIP	Temp. Eurasia
<i>annua</i>	Sweet W.	18	Suzuka 1950b	H	S.W. & N. Asia
<i>arborescens</i>		18	Martinoli 1943	H	Medit.
<i>cina</i>	Levant W.	18	Weinedel 1928	IM	S.W. Asia
<i>dracunculus</i>	Tarragon	18	" "	Sp	S. Europe
<i>lactiflora</i>	White Mugwort	18	Suzuka 1950b	H	China
<i>pontica</i>	Roman W.	18	Weinedel 1928	H	C. Europe
<i>stelleriana</i>	Beach M.	18	Suzuka 1950b	H	N.E. Asia, N. Am
<i>vulgaris</i>	Mugwort	18	Weinedel 1928	DI	N. Temp.
<i>palmeri</i> & 2 spp.		18	Ward 1953	—	California
14 species		18	{ Suzuka 1950b, 1951		
			Clausen <i>et al.</i> '40a, b		
			Nygren, L. & L. '48		
			Favarger 1953		
<i>borealis</i>		18, 36	Erlandsson 1939	—	N. & Arctic
<i>tridentata</i>	Sagebrush & 4 spp.	{ 18, 36	Ward 1953	HM	W: N. Amer.
<i>maritima</i>	Santonin	{ 18	Weinedel 1928		
		18	Pólya 1948	DI	Eur., C. Asia
		54	Suzuka & K. 1949		
<i>nitida</i>		27	Chiarugi 1926	Fo	Italy
<i>japonica</i>		36	Suzuka 1950b	—	Japan
11 species		36	" " '51		
			Clausen <i>et al.</i> 1940b		
<i>ludoviciana</i>		36, c. 54	" " '40a	HM	N. America
<i>koidzumii</i>		{ 36	Suzuka 1951		
		54	" 1950b		

# ARTEMISIA (cont.)

<i>douglasiana</i>	54	Clausen <i>et al.</i> '40a	HM	N. America
<i>verlotorum</i>	54	Vignoli 1945a	—	N. Temp.
<i>montana</i>	51-54	Shimotomai 1947	—	Arctic
<i>iwayomogi</i>	52-54	Suzuka 1950b	—	Japan
<i>rothrockii</i>	{ c. 72	Clausen <i>et al.</i> 1940a	H	W: N. America
	36, 54	Ward 1953		
$x_a = 17$				
<i>dubia</i>	34	Suzuka 1950b	—	N. Temp.
<i>grenata</i>	34	" 1951	—	China, Japan
<i>princeps</i>	34	" 1950b		

# ANACYCLUS $x = 9$

<i>pyrethrum</i>	18	Raves 1926	H	S.E. Europe
<i>radiatus</i>	18	Harling 1950	H	Medit.

# ANTHEMIS $x = 9$

<i>altissima</i>	18	Harling 1950	H	S. Europe
<i>arvensis</i>	18	" "	—	Eur., N. Afr., Asia Minor
<i>austriaca</i>	18		H	Austria
<i>cotula</i> Stinking May-Weed	18		—	Eur., N. & W. As.
<i>cupaniana</i>	18	Dowrick 1952a	H	Italy
<i>maritima</i>	18	Harling 1950	—	Medit.
<i>montana</i> (macedonica)	18	Dowrick 1952a	H	Eur., Syria
<i>nobilis</i> Chamomile	18	Suzuka & K. 1949	HM	Europe
<i>rigescens</i>	18	Harling 1950	H	Caucasus
<i>rudolphiana</i>	18	S. & S. 1940	—	"
<i>ruthenica</i>	18	Harling 1950	H	C. Europe
<i>tinctoria</i> Yellow Ch.	18	" "	DH	Eur.—Persia
<i>sancti-johannis</i>	18	Dowrick 1952a	H	Bulgaria

# CENIA $x = 9$

<i>turbinata</i>	18	Negodi 1935		S. Africa
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# CLADANTHUS $x = 9$

<i>arabicus</i>	18	Harling 1950	H	S. Spain, Morocco
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# LASIOSPERMUM $x = 9$

<i>radiatum</i>	18	Harling 1950	H	S. Africa
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# LONAS $x = 9$

<i>inodora</i> Afr. Daisy	18	Harling 1950	H	Medit.
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# NANANTHERA $x = 9$

<i>perpusilla</i>	18	Martinoli 1940	—	Corsica
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# OTANTHUS (DIOTIS) $x = 9$

<i>maritimus</i> Cotton Weed	18	Martinoli 1939	H	Medit.
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# SANTOLINA $x =$

<i>ptinnata</i>	18	Martinoli 1939	H	Italy
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# TANACETUM (CHRYSANTHEMUM) $x = 9$

<i>pseudachillea</i>	18	Dowrick 1952a	—	Turkestan
<i>vulgare</i> Tansy	18	Shimotomai 1937b	HMSp	Eur., N. Asia

# MATRICARIA $x = 9$

<i>ambigua</i>		18	Tahara 1921	—	Europe
<i>chamomilla</i>	Chamomile	18	L. & L. 1948	M	Medit.
<i>matricarioides (discoidea)</i>		18	Rutland 1941,	H	N.E. Asia
		18	Suzuka 1950a		
		18	Hüser 1930,		
<i>maritima</i>	Scentless May-	18	Hagerup 1941b,	H	Eur., S.W. Asia
<i>(inodora)</i>	Weed	36	Vaarama 1950,		
		36	Harling 1951a		

# ACHILLEA \* $x = 9$

<i>asplenifolia</i>	& 2 spp.	18	Ehrendorfer 1952	—	Europe
<i>atrata</i>		18	Reese 1952a	H	C. Europe
<i>cartilaginea</i>		18	Lewitsky, T. 1937	—	Eur., S.W. Asia
<i>nana</i>		18	Favarger 1953	H	Alps
<i>ptarmica</i>	Sneezewort	18	Lewitsky, T. 1937	HMV	Eur., N. & W. As
<i>macrophyllum</i>		18	Dowrick 1952a	—	N. Temp.
		18	Felfoldy 1947,		
<i>millefolium</i>	Yarrow	18	Harling 1950,	HM	Eur., W. Asia
		36, 54	Turesson 1938,		
		54	Ehrendorfer 1952		
<i>collina</i>		36	" "	—	Europe
<i>lanulosa</i>		36	Lawrence 1947	—	N. America
<i>borealis</i>		54	" "	—	W: N. America
<i>stricta</i>		54	Ehrendorfer 1952	—	Europe
<i>annonica</i>		72	" "	—	"

# CHRYSANTHEMUM $x = 9$

<i>argenteum</i>		18	Dowrick 1952b	H	S.W. Asia, Cauc.
<i>boreale</i>		18	" "	—	China, Japan
<i>cassium</i>		18	" "	—	S.W. Asia, Cauc.
<i>cutananche</i>		18	" "	H	Morocco
<i>cinerariaefolium</i>	Dalm. P.	18	" "	HIM	Dalmatia
<i>coccineum</i>	Pyrethrum	18	" "	HI	Cauc., Persia
<i>filifolium</i>		18	Shimotomai 1937b	—	Canaries
<i>foeniculaceum</i>		18	Harling 1951b	H	Teneriffe
<i>flosculosum</i>		18	Martinoli 1942	H	Medit.
<i>lavandulaefolium</i>		18	Shimotomai 1937b	I	Japan
<i>lineare</i>		18	" "	—	"
<i>macrophyllum</i>		18	Reese 1953	H	S.E. Eur., Cauc.
<i>macrotum</i>		18	Dowrick 1952b	—	Medit.
<i>makinoi (japonicum)</i>		18	Shimotomai & T. '36	H	Japan
<i>mawii</i>		18	Dowrick 1952b	H	Atlas
<i>millefoliatum</i>	18, 18 + iso.	"	" "	—	S.W. Russia
<i>myconis</i>		18	" "	H	C. & S. Europe
<i>nipponicum</i>		18	Shimotomai & T. '36	H	Japan
<i>nivellei</i>		18	Dowrick 1952b	—	Morocco
<i>parthenium</i>	Feverfew	18	" "	H	Eurasia
		18	Harling 1951a		
<i>rotundifolium</i>		18	Shimotomai 1937b	H	Hungary
<i>rupestre</i>		18	Sugiura 1937a	—	Japan
<i>serotinum</i>		18	Dowrick 1952b	—	Medit.
<i>uliginosum</i>		18	" "	H	Hungary
<i>viscidi-hirtum</i>		18	Battaglia 1951	—	S. Spain, N. Afr.
<i>frutescens</i>	Marguerite	18	Harling 1951b	H	Canary Is., cult
<i>v. crithmifolium</i>		27	Shimotomai 1937b	H	
<i>alpinum</i>		18, 36	" "	H	Eur. Alps

# CHRYSANthemum (cont.)

<i>atratum</i>		{ 18	Shimotomai 1937b	H	Eur., Alps
		36	Dowrick 1952b		
<i>coronarium</i>		18, 36	Shimotomai & H. '35	H	Medit.
<i>corymbosum</i>	18, 18 + iso	36	Dowrick 1952b	H	Caucasus
<i>oreades</i>		18, 36	" "	—	S.W. Asia, Cauc.
<i>segetum</i>	Corn M'gold	18, 36	" "	H	Eur., N. Afr., W Asia
<i>balsamita</i>	Costmary	{ 18, 54	" "	H	W. Asia
		18, 54	Harling 1951a		
<i>ircutianum</i>		36	Shimotomai 1937b	—	Siberia
<i>praealtum</i>		36	Dowrick 1952b	H	Caucasus
<i>wakasaense</i>		36	" "	—	China, Japan
<i>indicum</i>		36, 54	" "	BH	China
	cultivated vars.	45-63	" "		
<i>leucanthemum</i>	Ox-Eye D.	36, 54	" "	H	Eur., N. Asia
<i>camphoratum</i>		54	Harling 1951b	—	California
<i>ceratophylloides</i>		54	Shimotomai 1937b	—	Europe
<i>morifolium (sinense)</i>		54	" 1933	H	China, Japan
<i>shimotomaii</i>		54	" "	—	Japan
<i>sibiricum</i>		54	Shimotomai & H. '35	—	Arctic
<i>silvaticum</i>		54	Dowrick 1952b	—	Europe
<i>weyrichii</i>		54	Shimotomai 1937b	—	Sakhalin
<i>rubellum</i>		{ 63	Dowrick 1952b	H	<i>cult</i>
		70-80	Harling 1951b		
<i>arcticum</i>		72	Dowrick 1952b	H	Siberia
<i>decalsneanum</i>		72	Shimotomai 1933	—	Japan
<i>ornatum</i>		72	" "	H	China
<i>zawadskii</i>		72	" 1937b	—	Galicia
<i>sonare</i>		80	Dowrick 1952b	—	China, Japan
<i>maximum</i>	Shasta Daisy	85, 90, 126 148, 154, 160, 171	" "	H	N. Spain
<i>pacificum (marginatum)</i>		90	Shimotomai 1933	—	Japan
<i>yezoense (arcticum)</i>		90	" "	—	"
<i>lacustre</i>		198	Dowrick 1952b	H	Portugal

## COTULA x = 10

<i>coronopifolia</i>	Brass Buttons	20	Castro & F. 1946	H	S. Africa
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## TRIBE XI: VERNONIEAE

## VERNONIA x = 9

<i>cinerea</i>		18	Grant 1953	—	Burma
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## ELEPHANTOPUS x = 11

<i>carolinianus</i>	Elephant's Foot	22	Baldwin & S. 1955a	—	E. & C. U.S.A.
<i>tomentosus</i>	Devil's Grand-mother	22	" " "	—	" "
<i>nudatus</i>		22	" " "	—	

## TRIBE XII: EUPATORIEAE

## LIATRIS\* x = (9), 10

<i>elegans</i>		18	Langlet 1925	H	E: N. America
<i>chapmanii</i>	& 12 spp.	20	Gaiser 1949-51	H	S.E. U.S.A.

# LIATRIS (cont.)

<i>aspera</i>	20, 22	Gaiser 1951b	—	E: N. America
<i>acidota</i>	20, 30	" 1949	H	"
<i>angustifolia</i>	20, 30, 40	" 1950b	—	"
<i>punctata</i>	20, 30, 40	" "	H	W: N. America
<i>pychnostachya</i>	20 + 0-3B, 40	" 1949	H	E: N. America
<i>microcephala</i>	20, 60	" "	—	"
<i>densispicata</i>	40	" 1950b	—	Minnesota
<i>bracteata</i>	60	" "	—	Texas

# AGERATUM $x = 10$

<i>houstonianum (mexicanum)</i>	20	Cooper & M. 1935	H	Mexico
<i>conyzoides</i>	{ 20 40	Ishikawa 1916 Mitra 1947	HM	Tropics

# EUPATORIUM \* $x = 10, 17$ (Triploids Apomictic)

## $x = 10$

<i>cannabinum</i>	Hemp Agrimony	20	W. F. Grant 1953	H	Eur., N. Asia
<i>coelestinum</i>	Mist Flower	20	" "	H	N. America
<i>ianthinum</i>		20	Holmgren 1919	H	Mexico
<i>patens</i>		20	Krapovickas 1951a	—	Argentina
<i>perfoliatum</i>	Boneset & 14 spp.	20	Grant 1953	HM	N. America
<i>recurvans</i>	& 2 spp.	20, 30	" "	—	
<i>purpureum</i>		20, 40	" "	HM	
<i>pilosum</i>	& 3 spp.	30	" "		
<i>pubescens</i>		30, 40	" "		
<i>mohrii</i>	& 2 spp.	40	" "		
<i>rothrockii</i>		c. 80	" "		

## $x = 17$

<i>ageratoides</i>		34	Holmgren 1919	H	N. Amer., W.I.
<i>occidentale</i>	& 2 spp.	34	Grant 1953	—	N. America
<i>petiolatum</i>		c. 34	Holmgren 1919	H	Mexico
<i>purpusi</i>		34	" "	H	California
<i>rugosum</i>	White Snakeroot	{ 34 36	Grant 1953 Cooper & M. 1935	HM	Chile, Peru
<i>glandulosum</i>		51	Grant 1953	H	Mexico

# ADENOSTYLES $x = 19$

<i>albifrons</i>		38	Langlet 1936	H	Europe
<i>alpina</i>		38	" "	H	"
<i>leucophylla</i>		38	Favarger 1953	H	W. Alps

# MIKANIA $x = 19$

<i>scandens</i>	Cl. Hempweed	38	Mitra 1947	H	Temp. America
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## TRIBE XIII: MUTISIEAE

# TRICHOCLINE $x = 18$

<i>cineraria</i>		36	Covas & S. 1947		S. America
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# MUTISIA $x = 23$

<i>species</i>		46	Snoad 1952	H	S. America
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# GERBERA (PERDICIUM) $x = 23, 25$

<i>anandria</i>		46	M. & S. 1935	H	Siberia, Japan
<i>integripetala</i>		46	Kishimoto 1936	H	Formosa
<i>jamesoni</i>	Barberton Daisy	50	" "	H	Transvaal

**CHAPTALIA**  $x = 24$ *integrifolia*  
*nutans*

48 Baldwin &amp; S. 1947b

48        "        "

Trop. America  
Mexico**CYCLOLEPIS**  $x = 27$ *genistoides*

54 Covas &amp; S. 1947

—

N. Patagonia

**PLAZIA**  $x = 27$ *argentea*

54 Covas &amp; S. 1946

—

Argentina

**PROUSTIA**  $x = 27$ *ilicifolia*

54 Covas &amp; S. 1946

—

Chile



## Group XVI

### GENTIANALES

239

H

### PRIMULALES

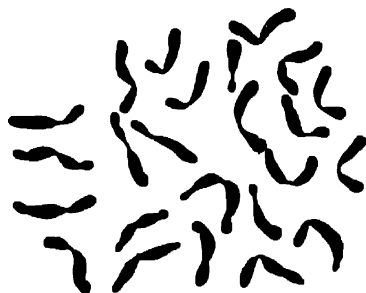
240, 241

H

### PLANTAGINALES

242

H



*Primula sinensis*



## 239 GENTIANACEAE

### LOMATOGONIUM

<i>rotatum</i>	10	D. Löve 1953	—	Circumpolar
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### GENTIANA (incl. GENTIANELLA)\* $x = 5, 6, 7, \quad x_2 = 11, 13$

<i>tenella</i>		10	Favarger 1949a	H	North Reg.
<i>nivalis</i>		14	" "	H	Europe
<i>utriculosa</i>		22	" 1952b	H	
<i>brachyphylla</i>		24	Mattick, T. 1950	H	
<i>frigida</i>		24	Skalinska 1951	H	
<i>algida</i>		26	S. & S. 1938	H	Siberia
<i>altaica</i>		26	" "	H	"
<i>andrewsii</i>	& 10 spp.	26	Rork 1949	H	E: N. America
<i>septemfida</i>		26	S. & S. 1938	H	Asia M.—Persia
<i>makinoi</i>		26	Sakai 1934	H	Japan
<i>pneumonanthe</i>		26	Scheerer 1939	H	Eur., N. Asia
<i>scabra</i>		26	Suzuka 1950	H	Manch., N. China
<i>bavarica</i>		28	Mattick, T. 1950	H	C. Europe
		{ 26	Skalinska 1950a	H	
		{ 28	Favarger 1949a	H	Eur., Asia
<i>acaulis</i>	Stemless G.	36	Rork 1949	H	Europe
<i>alpina</i>		36	Favarger 1949a	H	"
<i>amarella</i>		36	D. Löve 1953		W. Eur.—Siberia
<i>aurea</i>		36	" "		Arctic
<i>austriaca</i>		36	Favarger 1952b		Europe
<i>campestris</i>	Field G.	36	" 1949a	H	
<i>clusii</i>		{ 36	" "	H	
		{ 36	Skalinska 1950a		
<i>insubrica</i>		36	Favarger 1952b	—	
<i>kochiana</i>		36	" 1949a	H	C. Europe
<i>praecox</i>		36	Skalinska 1951	—	Europe
<i>prostrata</i>		36	Favarger 1952b	H	N. Temp.
<i>quinqueflora</i>		36	Rork 1949	H	E: U.S.A.
<i>saxosa</i>		36	Favarger 1952b	H	New Zealand
<i>tenuifolia</i>		36		H	
<i>lutea</i>	Gentian	40	" 1949a	HM	Eur., Asia M.
<i>punctata</i>		40	" 1942b	H	Europe
		40	Skalinska 1951		
<i>purpurea</i>		40	Favarger 1949a	H	"
<i>macrophylla</i>		42	Rork 1949	—	Siberia
<i>asclopiadea</i>		44	Favarger 1949a	H	Europe
		44	Skalinska 1951		
<i>ciliata</i>		44	Favarger 1949a	H	
<i>detonsa</i>		44	D. Löve 1953	H	N. Eur., Arctic
<i>cruciata</i>		52	Favarger 1949a	H	Russia
<i>phlogifolia</i>		52	Rork 1949	H	Eur., N. Asia
<i>straminea</i>		52		H	E. Eur., Asia
<i>crinita</i>		78			W. China
<i>proceræ</i>		78			E: N. America

### CENTAURIUM (ERYTHRAEA) $x = 7$

<i>littorale</i>	Centaury	{ c. 38	Wulff 1937a	
( <i>vulgare</i> )		{ c. 56	Warburg, M. 1939	Europe

# CENTAURIUM (cont.)

<i>minus</i>	42	Rork 1949	—	N. America
<i>pulchellum</i>	42	" "	—	Eur., Temp. Asia

# SWERTIA $x = 7, 9, 12$

<i>cuspidata</i>	18	Sakai 1940	—	N. Temp.
	18	" 1935		
<i>perennis</i>	24	Woycicki 1937	H	"
	28	Favarger 1952b		
<i>bimaculata</i>	24	Suzuka 1950	H	Himalayas

# EXACUM $x = 9$

<i>affine</i>	36	Sugiura 1936	H	Socotra
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# LEIPHAIMOS (VOYRIA) $x = 9$

<i>azurea</i>	36	Winge 1925	—	Tropics
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# MENYANTHES $x = 9$

<i>trifoliata</i>	Buckbean	54	Rork 1949	M	N. Temp.
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# EUSTOMA $x = 9$

<i>russellianum</i>	Prairie Gentian	72	Rork 1949	H	Neb.—Tex.
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# NYMPHOIDES (LIMNANTHEMUM) $x = 9$

<i>cristata</i>		18	Mookerjea 1951	—	India, China
<i>pelata</i>	Water Fringe	24?	Wang, D. 1951	H	Eurasia
( <i>L. nymphaoides</i> )		54	Scheerer 1939		
<i>cordata</i>	Floating Heart	36	Rork 1949	H	E: N. America

# BLACKSTONIA (CHLORA) $x = 11$

<i>perfoliata</i>	Yellow-wort	44	Maude 1939	—	Eur., S.W. Asia, Morocco
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# HALENIA $x = 11$

<i>elliptica</i>		22	Favarger 1952b	H	Himalayas
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# BARTONIA $x = 13$

<i>paniculata</i>		52	Rork 1949	—	N. America
<i>virginica</i>		52	" "	—	"

# NEUROTHECA $x = 15$

<i>loeselioides</i>		30	Favarger 1952b	—	W. Trop. Africa
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# FAURIA $x = 17$

<i>crista-galli</i>		68	M. & S. 1935	H	N. Japan
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# ENICOSTEMA $x = 19$

<i>littorale</i>		38	Srinivasan 1941	—	Tropics
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# FRASERA $x = 13?$

<i>caroliniensis</i>		78	Rork 1949	H	E: N. America
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## 240 PRIMULACEAE

# CYCLAMEN $x = 5, 11, 12, 17$

<i>balearicum</i>	20	de Haan & D. 1951	H	Balearic Is.
<i>repandum</i>	20	" "	H	France—Greece

# CYCLAMEN (cont.)

<i>creticum</i>	22	de Haan & D. 1951	H	Crete
<i>cilicium</i>	30		H	Asia Minor
<i>cyprium</i>	30		H	Asia M., Cyprus
<i>libanoticum</i>	30		H	Syria
<i>orbiculatum</i>	30		H	S.E. Eur., As. M., Caucasus
<i>pseudibericum</i>	30		H	Asia Minor
<i>europaeum</i>	34		H	C. Europe
<i>neapolitanum</i>	34		H	France—Asia M.
<i>africanum</i>	68		H	Algeria
<i>persicum</i> Florists' C.	48	"	H	E. Medit.
garden forms	48, 96	"	H	cult
<i>graecum</i>	84-85	"	H	E. Medit.

## PRIMULA \* x = 8, 9, 10, 11, 12, 13

### S. 1. SOULIERI x = 8

<i>rupicola</i>	16	Bruun 1932b	—	Yunnan
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### S. 2. INAYATII x = 8

<i>inayatii</i>	16	Bruun 1932b	—	E. India
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### S. 3. FARINOSAE x = 8, 9, 10, 11

(i) <i>blandula</i>	16	Bruun 1932b	—	Burma, Tibet
<i>caldaria</i>	16	" "	—	Yunnan
<i>genesteriana</i>	16	" "	—	"
<i>glabra</i>	16	" "	—	Himalayas
<i>knuthiana</i>	16	" "	—	China
<i>sertulum</i>	16	" "	—	"
<i>stenocalyx</i>	16	" "	—	"

(ii) <i>exigua</i>	18	" "		North Reg.
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<i>farinosa</i>	Bird's-eye P. { 18, 72 18, 36	" "	H	"
<i>farinifolia</i>	18	Davies 1953	—	Caucasus
<i>frondosa</i>	18	Bruun 1932b	—	Thrace
<i>fauriei</i>	18	" "	H	Japan
<i>modesta</i>	18	" "	H	"
<i>longiflora</i>	36	" "	H	S.E. Europe
<i>scotica</i>	54	" "	—	Scotland
<i>scandinavica</i>	72	" "	—	S. Scandinavia
<i>laurentiana</i>	72	" "	—	Quebec, etc.
<i>capitellata</i>	72	" "	H	S.W. Asia
<i>magellanica (decipiens)</i>	72	" "	—	Magellan
<i>stricta</i>	126	" "	—	Arctic

(iii) <i>fasciculata</i>	18	" "	—	Yunnan
<i>chrysopa</i>	20	" "	H	China
<i>yargonensis</i>	20	" "	H	Tibet
<i>tibetica</i>	20	" "	—	"
<i>involutocrata</i>	22	" "	H	Himalayas
<i>sibirica</i>	{ 22 44	S. & S. 1938 Bruun 1932b	H	Arctic, Himal.

### S. 4. CAPITATAE x = 9

<i>capitata</i>	18	Bruun 1932b	H	Himalayas
<i>crispata</i>	18	" "	H	Sikkim
<i>lacteocapitata</i>	18	" "		

**PRIMULA (ccnt.)**

<i>mooreana</i>	18	Bruun 1932b	H	Sikkim
<i>sphaerocephala</i>	18		H	Yunnan
<b>S. 5. MALACOIDES <math>x = 9</math></b>				
<i>effusa</i>	18	Bruun 1932b	H	Yunnan
<i>forbesii</i>	18		H	China, Burma
<i>malacoides</i>	18, 36		H	W. China
garden forms	18, 36 (54)	Janaki Ammal 1952a	H	cult
<b>S. 6. VERTICILLATA <math>x = 9</math></b>				
<i>floribunda</i>	18	Bruun 1932b	H	Himalayas
<i>verticillata</i>	18	" "	H	S. Arabia
<i>kewensis</i> (flor. $\times$ vert.)	36	" "	H	cult
<b>S. 7. AURICULA <math>x = 11</math> ; <math>x_3 = 31</math> (9 + 11 + 12)</b>				
<i>palinuri</i>	44	Wanner 1943	H	S. Italy
<i>hortensis</i>	54?	Bruun 1932b	H	cult
<i>auricula</i>	62	Wanner 1943	H	C. Europe
<i>hirsuta</i>	62	" "	H	
<i>integrifolia</i>	62	" "	H	
<i>viscosa</i>	62	" "	H	
<i>glaucescens</i>	62?	" "	H	Alps
<i>minima</i>	62?	" "	H	C. Europe
<i>marginata</i>	90?	Bruun 1932b	H	Alps
<b>S. 8. MUSCARIOIDES <math>x = 10</math></b>				
<i>atricapilla</i>	20 + 1-3B	Bruun 1932b		Tibet
<i>bellidifolia</i>	20			Himalayas
<i>cernua</i>	20 + 3B			China
<i>littoniana</i>	20		H	"
<i>apoclita?</i>	40			Tibet
<i>cyanantha</i>	40			"
<i>deflexa?</i>	40		H	W. China
<i>lepta</i>	40		H	Yunnan
<i>menziesiana</i>	40		H	Bhutan
<b>S. 9. SOLDANELLOIDEAE <math>x = 10</math></b>				
<i>buryana</i>	20	Bruun 1932b	—	Himalayas
<i>nutans</i>	20	" "	H	Yunnan
<i>reidii</i>	20	" "	H	Kumaon (Him.)
<i>wollastonii</i>	20	" "	—	Himalayas
<b>S. 10. YUNNANENSIS <math>x = 11</math></b>				
<i>yunnanensis</i>	22	Bruun 1932b	—	China
<b>S. 11. MINUTISSIMAE <math>x = 11</math></b>				
<i>reptans</i>	22	Bruun 1932b	—	Himalayas
<b>S. 12. CUNEIFOLIA <math>x = 11</math></b>				
<i>nipponica</i>	22	Bruun 1932b	H	Japan
<i>suffrutescens</i> Sierra P.	44	" "	H	California
<b>S. 13. AURICULATA <math>x = 11</math></b>				
<i>rosea</i>	22	Bruun 1932b	H	Himalayas
<i>elliptica</i>	22	" "	—	"
<i>algida</i>	18? S. & S. 1938		H	W. Asia
	44 Bruun 1932b			
<i>luteola</i>	44	" "	H	Caucasus
<i>auriculata</i>	45 S. & S. 1940		H	
<b>S. 14. DENTICULATA <math>x = 11</math></b>				
<i>denticulata</i>	22 + 0-5B	Bruun 1932b	H	Himalayas
as <i>cachemiriana</i>	44 + 8B			
<i>erythrocarpa</i>	22 + 0-5B			Bhutan
<i>crispa</i>	44 + B		H	Himalayas

# **PRIMULA (cont.)**

<b>S. 15. SIKKIMENSIS <math>x = 11</math></b>					
<i>sikkimensis</i>	& 11 spp.	22	Bruun 1932b	H	Himalayas
<b>S. 16. CANDELABRA <math>x = 11</math></b>					
<i>pulverulenta</i>	& 15 spp.	22	Bruun 1932b	H	China
<i>japonica</i>		44	" "	H	Japan
<b>S. 17. ROTUNDIFOLIA <math>x = 11</math></b>					
<i>gambeliana</i>		22	Bruun 1932b	—	Himalayas
<b>S. 18. NIVALES <math>x = 11</math></b>					
<i>chionantha</i>		22 + 2-7B	Bruun 1932b	H	Yunnan
<i>macrophylla</i>		22	" "	—	Himalayas
<i>maximowiczii</i>		22	" "	—	N. China
<i>nivalis</i>		22	S. & S. 1938	H	C. Asia
<i>obliqua</i>		22	Bruun 1932b	—	Himalayas
<i>purdomii</i>		22	" "	—	Kansu
<i>russeola</i>		22	" "	—	Tibet
<i>sinoplangtaginea</i>		22	" "	—	Yunnan
<i>tangutica</i>		22	" "	—	China
<i>ellisiae</i>		44	" "	—	N. America
<i>leucops</i>		44	" "	+	Szechuan
<i>parryi</i>		44	" "	H	W: N. America
<i>rusbyi</i>		44	" "	H	New Mexico
<b>S. 19. PETIOLARES <math>x = 11</math></b>					
<i>winteri</i>		22	Bruun 1932b	H	Himalayas
<b>S. 20. VERNALES <math>x = 11</math></b>					
<i>elatior</i>	Oxlip	22	Bruun 1932b	—	Eur., Asia Min.
<i>juliae</i>	& 17 spp.	22	" "	H	Caucasus
<i>veris</i>	Cowslip	22	" "	H	Eur., Asia Min.
<i>vulgaris</i>	Primrose	22	" "	H	Europe
<b>S. 21. MEGASEAEFOLIA <math>x = 11</math></b>					
<i>megaseaeifolia</i>		22	Bruun 1932b	—	Asia Minor
<b>S. 22. GRANDIS <math>x = 11</math></b>					
<i>grandis</i>		44	Bruun 1932b	H	Caucasus
<b>S. 23. CORTUSOIDES <math>x = 11, 12, 13</math></b>					
(i) <i>geraniifolia</i>		22	Bruun 1932b	H	Himalayas
<i>heucherifolia</i>		22	" "	H	W. China
<i>latiseeta</i>		22	" "	—	Tibet
(ii) <i>maclareni?</i>		24	" "	—	Korea
<i>mollis</i>		24	" "	—	Himalayas
<i>seclusa</i>		24	" "	H	Yunnan, Burma
<i>septemloba</i>		24	" "	—	China
(iii) <i>pauliana</i>		24	" "	—	Szechuan
(iv) <i>cortusoides (dentiflora)</i>		24	" "	H	Siberia
<i>hymenophylla</i>		24	" "	—	Tibet
<i>lichiangensis</i>		24	" "	H	Yunnan
<i>polyneura</i>		24	" "	—	China
<i>saxatilis</i>		24	" "	H	Korea
<i>veitchii</i>		24	" "	H	China
<i>sieboldii</i>		24, 36	" "	H	Japan
(v) <i>jesoana</i>		26	" "	H	"
<b>S. 24. BULLATAE <math>x = 12</math></b>					
<i>forrestii</i>		24	Bruun 1932b	H	China
<i>fruticosa</i>		24	" "	H	cult
<i>redolens</i>		24	" "	—	Yunnan
<i>rufa</i>		24	" "	H	"

**PRIMULA (cont.)**

**S. 25. SINENSIS  $x = 12$**

<i>calciphila</i>	24	Bruun 1932b	—	Hupei
<i>sinensis</i> Chinese P.	24	" "	H	cult
	48	Darlington 1931a		

**S. 26. OBCONICA  $x = 12$**

<i>obconica</i>	24, 48	Bruun 1932b	H	China
<i>sinolisteri</i>	24	" "	—	Yunnan
<i>werringtonensis</i>	24	" "	—	"

**S. 27. PYCNOLOBA  $x = 12$**

<i>pycnoloba</i>	24	Bruun 1932b	—	W. China
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**S. 28. REINII  $x = 12$**

<i>reinii</i>	24	Bruun 1932b	H	Japan
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**LYSIMACHIA  $x = 9, 12, 14$**

<i>nemorum</i>	18	Wulff 1938	—	Europe
<i>clethroides</i>	24	Sugiura 1936a	H	China, Japan
<i>vulgaris</i> Yellow Loosestrife	28	Lewitzky 1934	H	Eurasia
<i>nummularia</i> Creeping Jenny	36	Wulff 1938	H	Eur., Caucasus
<i>punctata</i>	30	Reese 1953	—	Austria—Cauc., Asia Minor

**ANDROSACE  $x = 9, 10$**

<i>villosa</i>	72	S. & S. 1940	H	Cauc., Himal.
<i>septentrionalis</i> Rock Jasmine	20	Dahlgren 1916	H	N. Hemisph.

**HOTTONIA  $x = 10$**

<i>palustris</i> Water Violet	{ 20	Ehrenberg 1945,	H	Europe
	20	Wulff 1938		

**SOLDANELLA  $x = 10$**

<i>carpatuca</i>	40	Satczek 1951	—	E. Europe
<i>montana</i>	40	" "	H	"

**NAUMBERGIA (LYSIMACHIA)  $x = 10?$**

<i>thyrsiflora</i> Tufted Loosestrife	c. 40	Dahlgren 1916	—	N. Temp.
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**ANAGALLIS  $x = 10, 11$**

<i>tenella</i>	22	Maude 1940	—	Europe
<i>arvensis</i> Scarlet Pimpernel	40	Wulff 1937b	—	"

**CENTUNCULUS  $x = 11$**

<i>minimus</i> Chaffweed	22	Hagerup 1941b		Eur., N. & S. Am.
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**CORTUSA  $x = 12$**

<i>matthioli</i>	24	Bruun 1932b	—	Eur., N. Asia
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**OMPHALOGRAMMA  $x = 12$**

<i>farreri</i>	48	Bruun 1932b	H	Burma
<i>elwesianum</i>	96	" "	H	Himalayas

**SAMOLUS  $x = 12?$**

<i>valerandi</i> Brookweed	c. 24, c. 36	Wulff 1937a	—	Cosmop.
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**GLAUX  $x = 15$**

<i>maritima</i> Black Saltwort	30	Wulff 1937a	—	Temp.
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**DODECATHEON  $x = 22$**

<i>alpinum</i>	44	Thompson 1953	H	California
<i>conjungens</i>	44	" "	—	W: N. America

# DODECATHEON (cont.)

<i>cusickii</i>	44	Thompson 1953	H	W: N. America
<i>dentatum</i>	44	" "	—	"
<i>frigidum</i>	44	" "	H	Behring Str.
<i>jeffreyi</i>	42, 44, 66	" "	H	W: N. America
<i>clevelandii</i>	44, 66, 88	" "	H	California
<i>hendersonii</i>	44, 66, 132	" "	H	W: N. America
<i>subalpinum</i>	66	" "	—	California
<i>hanseni</i>	88	" "	—	"
<i>media</i>	Shooting Star	88	H	N. America
<i>poeticum</i>	88	" "	—	Oregon

# TRIENTALIS $x = ?$

<i>europaea</i>	{ c. 112 L. & L. 1944b c. 160 Ehrenberg 1945	—	Subarctic
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## 241 PLUMBAGINACEAE

### PLUMBAGELLA $x = 6$

<i>micrantha</i>	12	Phillips 1938	—	C. Asia
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### PLUMBAGO $x = 7, 8$

<i>europaea</i>	Common P.	14	Phillips 1938	M	S. Eur., Cauc.
<i>capensis</i>	Leadwort	{ 14	Dahlgren 1916	H	S. Africa
		16	D'Amato 1940b		

### CERATOSTIGMA $x = 7, 9$

<i>plumbaginoides</i>	{ 14 Phillips 1938 18 Sugiura 1944	H	China
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### ARMERIA $x = 8, 9$

<i>pinifolia</i>	16	Sugiura 1939	—	Portugal
<i>sardoa</i>	16	" "	—	Corsica, Sard.

<i>alliacea</i>	18	" "	—	W. Medit.
<i>arctica</i>	18	" 1944	—	N.W. Europe
<i>berlengensis</i>	18	" "	—	Portugal
<i>canescens</i>	18	" 1939	H	C. Europe
<i>cariensis</i>	18	" 1944	—	Asia Minor
<i>denticulata</i>	18	" 1939	—	Italy
<i>filicaulis</i>	18	" "	—	Spain
<i>juncea</i>	18	" "	H	S. France
<i>juniperifolia</i>	18	" "	H	Spain, Portugal
<i>longiaristata (allioides)</i>	18	" "	H	Spain
<i>macrophylla</i>	18	" 1944	H	"
<i>plantaginea</i>	18	" 1939	H	W. Europe
<i>pseudarmeria</i>	18	Phillips 1938	H	S. Europe
<i>scabra</i>	18	Sugiura 1944	—	N. Asia
<i>welwitschii</i>	18	" 1938	H	Spain

<i>mauritanica</i>	{ 18 Phillips 1938 54 Sugiura 1939	H	N. Africa
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<i>maritima</i>	Thrift, Sea Pink	{ 18 D'Amato 1940b 18 L. & L. 1944b	H	W. Eur., Sib., N & S. America
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<i>v. alpina</i>	{ 18 Phillips 1938 36 Sugiura 1939			
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**LIMONIUM (STATICE)  $x = 6, 7, 8, 9$  (Apomixis)**

<i>mucronatum</i>	12	Baker unp.	—	Morocco
<i>puberulum</i>	14	"	H	Canary Is.
<i>echioides</i>	28	"	H	Medit., Asia M.
<i>bicolor</i>	16	Sugiura 1939	—	China
<i>bonduellii</i>	16	" "	H	Algeria
<i>cordatum</i>	16	" 1944	H	Medit.
<i>dictyocladum</i>	16	" 1939	—	"
<i>ferulaceum</i>	16	Baker unp.	H	"
<i>ovalifolium</i>	16	"	—	W. Europe
<i>spicatum</i>	16	Sugiura 1936a	H	Casp.—Altai
<i>thouinii</i>	16	" 1944	H	S.E. Eur., Cauc.
<i>globulariaefolium</i>	64	" 1939	H	Medit., N. Afr.
<i>vulgare</i>	Sea Lavender	{ 32 Choudhuri 1942	H	Eur., N. Afr., Asia
		{ 36 Castro & F. 1946		Minor
<i>binervosum</i> (Apo.)	{ 32 Choudhuri 1942	H	W. Europe	
	{ 34, 35, 36 Baker unp.			
<i>bellidifolium</i>	18	Choudhuri 1942	H	Europe
<i>latifolium</i>	18	Baker unp.	H	Bulg.—S. Russia
<i>sinuatum</i>	18	Wulff 1937a	H	Medit.
<i>suworowii</i>	18	" "	H	N.E. Persia—
				Turkestan
<i>californicum</i>	18	Baker unp.	—	California
<i>mexicanum</i>	18	"	—	"
<i>suffruticosum</i>	18	Aleskowsky 1930	—	Cauc.—C. Asia
<i>gmelinii</i>	{ 18, 27	" "	H	E. Eur., Siberia
	{ 36 Pólya 1948			
<i>confusum</i> (Apo.)	27	D'Amato 1949b	—	Sicily
<i>cosyrense</i>	"	27 Baker unp.	H	"
<i>recurvum</i>	"	27 "	—	Portland Bill
<i>transwallianum</i>	"	27, 35 "	—	S. Wales, W. Irel.
<i>humile</i>	36	Choudhuri 1942	—	N.W. Europe
<i>sareptans</i> (tomentella)	36	Aleskowsky 1930	—	Russia
<i>lychnidifolium</i> (Apo.)	25	Baker unp.	—	W. Eur., N. Afr.
<i>paradoxum</i>	"	33 "	—	S. Wales, N. Irel.
<i>girardianum</i>	"	35 "	—	Portugal

**GONIOLIMON  $x = 8$**

<i>incanum</i>	16	Sugiura 1936a	H	N. Afr.—Siberia
<i>tataricum</i>	{ 16	" 1944	H	S.E. Eur.,—Sib.
	{ 32	Baker unp.		

**ACANTHOLIMON  $x = 8$**

<i>androsaceum</i> v. <i>creticum</i>	32	Baker unp.	H	E. Medit.
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## 242 PLANTAGINACEAE

**PLANTAGO \*  $x = 4, 5, 6$   $x_2 = 9 (4 + 5)$**

$x = 4$					
<i>ovata</i>	Isfghol	8	Hyde 1953	M	N.W. India
$x = 5$					
<i>amplexicaulis</i>		10	MacCullagh 1934	—	Med.—N.W. Ind.
<i>bellardi</i>		10	" "	—	Med., S.W. Asia
<i>cretica</i>		10	" "	—	E. Medit.
<i>serraria</i>		10	" "	—	Medit.
<i>acanthophylla</i>		10–12	" "	—	S. Europe

# **PLANTAGO (cont.)**

<i>aristata</i>	Indian Wheat	20	Heitz 1927	Fo	N. & S. Amer.
<i>coronopus</i>	Buck's Horn	10, 11, 30	Bøcher <i>et al.</i> 1953	V	Eur., N. Asia
<b><math>x = 6</math></b>					
<i>arborescens</i>	& 14 spp.	12	MacCullagh 1934	—	Canary Is.
<i>psyllium</i>	Fleawort & 3 spp.	12	Heitz 1927	M	Med.—N.W. Ind.
<i>sericea</i>		12–14	MacCullagh 1934	—	Peru
<i>maritima</i>	Sea Plantain	12	Hagerup 1941b	V	Eur., N. Amer.,
		12 (18), 24	Earnshaw 1942		Arctic
		12	Nakajima 1930,		
<i>lanceolata</i>	Ribwort	{ 12, 13	Bøcher <i>et al.</i> 1953	Fo	Eur., N. Asia
		{ 24, 96	MacCullagh 1934		
<i>major</i>	Great Pl.	12	Turesson 1938	Fo	Eur., Asia M.
<i>v. asiatica</i>		24	Ikeno 1929		
<i>alpina (borealis)</i>	& 7 spp.	24	MacCullagh 1934	—	C. Europe
<i>tenuiflora</i>		24	Tarnavski 1938	—	E. Eur., N. Asia
<i>japonica</i>		36	Ono 1953	—	Japan
<b><math>x = 6, 10</math></b>					
<i>albicans</i>		{ 12	MacCullagh 1934	—	Medit.
		{ 20	Lorenzo-Andreu 1951		
<i>patagonica</i>	Indian Wheat	{ 24	MacCullagh 1934	Fo	N. & S. Amer.
		{ 20	Covas & S. 1946		
<b><math>x_2 = 9</math></b>					
<i>raoulii</i>		18	MacCullagh 1934	—	New Zealand
<b>LITTORELLA <math>x = 6</math></b>					
<i>uniflora</i>	Shoreweed	24	L. & L. 1942	—	C. & N. Europe



## Group XVII

### CAMPANALES

243–246

H(S)

### POLEMONIALES

247, 248

H

### BORAGINALES

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HST



*Campanula persicifolia*



## 243 CAMPANULACEAE

JASTIONE  $x = 6, 7$

<i>montana</i>	Sheep's Bit	{ 12	Rosen 1931	H	Europe
		{ 12, 14	Wulff 1937a		
<i>perennis</i>		60	Rosen 1931	H	W. Europe

ASYNEUMA (PHYTEUMA, PODANTHUM)  $x = 6, 17$

<i>limonifolium</i>		24	Rosen 1931	H	S. Eur., Asia M.
<i>sibthorpiatum</i>		24	" "	H	Greece
<i>canescens</i>		34	Sugiura 1942	H	C. Eur., Cauc.
<i>campanuloides</i>		102	" "	H	Caucasus

PHYTEUMA  $x = (6), 12, 13, 14$

<i>betonicifolium</i>		24	Favarger 1953	H	Alps
<i>lobelioides</i>		24	Sugiura 1942	H	Asia Minor
<i>micchauxioides</i>		24	" "	—	—
<i>halleri</i>		26	" "	H	S. Europe
<i>nigrum</i>		26	" "	H	S.W. Europe
<i>globulariifolium</i>		28	Favarger 1953	—	Alps, Pyrenees
<i>hemisphaericum</i>		28	" "	H	" "
<i>scheuchzeri</i>		36	Rosen 1931	H	S. Europe
<i>spicatum</i>	Spiked Rampion	36	Armand 1912	H(R)	Europe

SPECULARIA (CAMPANULA)  $x = 7, 10$

<i>speculum</i>	Venus' Looking Glass	{ 14	Koller 1945*	H	S. Europe
		{ 20	Sugiura 1942		
<i>hybrida</i>		20	" "	—	Medit.
<i>pentagonia</i>		20	" "	H	"

CODONOPSIS  $x = 8$

<i>clematidea</i>		16	Rosen 1931	H	C: W. Asia
<i>subsimpler</i>		16	" "	H	C. Asia

EDRAIANTHUS (WAHLENBERGIA)  $x = 8?$

<i>graminifolius</i>		{ 24	Rosen 1931	H	Dalmatia
		{ 32	Sugiura 1942		
<i>tenuifolius</i>		32	" "	H	"

PLATYCODON  $x = (7?) 9$

<i>grandiflorum</i>	Chinese Bell Flower	{ 18	Suzuka & K. 1949	H	E. Asia
		{ 28	Kihara <i>et al.</i> 1931		
<i>v. mariesii</i>		18	Sugiura 1942		

CAMPANULA \*  $x = 8, 10, 12, 13, 14, 17$

<i>latiloba</i> ( <i>grandis</i> )		16	Marchal 1920	H	Siberia
<i>pyrenaica</i>		16	Sugiura 1942	H	Pyr., Balearic Is.
<i>subpyrenaica</i>		16	" "	H	N.E. Spain
<i>persicifolia</i>	16, 17, 18, 32	32	Darlington & L. C. '50	H	Eur., Sib.
<i>isophylla</i>		32	Vilmorin & S. 1927b	H	Riviera
<i>pulloides</i>		48	Koller 1945*	H	<i>cult</i>
<i>thyrsoidea</i>		48	Sugiura 1942	H	Eur. Alps
<i>phycidocalyx</i>		{ 16	La Cour 1945*	H	S.W. Asia
		{ 102	Sugiura 1942		
<i>carpaticea</i>		{ 32	Koller 1945*	H	Carpathians
		{ 34	Sugiura 1942		

# CAMPANULA (cont.)

<i>allariaefolia</i>	{ 96 68	M. & S. 1935 Sugiura 1942	H	Asia M., Cauc.
<b>x = 10</b>				
<i>macrostyla</i>	20	Marchal 1920	H	Crimea
<i>patula</i>	20	Rutland 1941	H	S. Europe
<i>propinqua</i> v. <i>grandiflora</i>	20	Sugiura 1942	H	Armenia, Persia
<i>rapunculul</i> Rampion	20	Marchal 1920	HV	Eur., N. Africa
<i>steveni</i> v. <i>nana</i>	20	Koller 1945*	H	Cauc., Persia
<i>divaricata</i>	40	La Cour 1945*	—	N. America
<i>ramosissima</i> ( <i>loreyi</i> ) as <i>drabifolia</i>	{ 20 34	Marchal 1920 Sugiura 1942	H	S. Europe
<b>x = 12</b>				
<i>colorata</i>	24	Kishore 1951	H	Sikkim Himal.
<b>x = 13</b>				
<i>cervicaria</i>	26	Sugiura 1942	H	Greece
<i>peregrina</i> ( <i>primulaefolia</i> )	26	Marchal 1920	H	Spain, Portugal
<b>x = 14</b>				
<i>erinus</i>	28	Koller 1945*	H	Medit., Canaries
<b>x = 17</b>				
<i>allionii</i>	34	La Cour 1945*	H	Alps
<i>barbata</i>	34	Marchal 1920	H	"
<i>betonicaefolia</i>	34	" "	H	Greece
<i>bononiensis</i> & 16 spp.	34	Sugiura 1942	H	E. Eur., W. Asia
<i>dasyantha</i>	34	Sakai 1935	—	Sib., N. Africa
<i>fragilis</i>	34	Marchal 1920	—	Adriatic
<i>hypopolia</i>	34	La Cour 1945*	—	Temp. Asia
<i>latifolia</i> Giant C.	34	Vilmorin & S. 1927b	H	Eur.—Kashmir
<i>longestyla</i>	34	" "	H	Caucasus
<i>medium</i> Canterbury Bell	34	Sugiura 1942	H	S. Europe
<i>piperi</i>	34	La Cour 1945*	H	W: N. America
<i>punctata</i> ( <i>nobilis</i> )	34	Marchal 1920	H	Japan, Siberia
<i>pyramidalis</i>	34	" "	H	Europe
<i>pyraversi</i>	34	Vilmorin & S. 1927b	H	cult
<i>trachelium</i>	34	Marchal 1920	H	Eur., Sib., N. Afr.
<i>tubulosa</i>	34	La Cour 1945*	—	Crete
<i>van Houttii</i>	34	Vilmorin & S. 1927b	H	cult
<i>thyrsoides</i>	{ 34 48	Rosen 1931 Sugiura 1942	H	Eur. Alps
<i>cochlearifolia</i> ( <i>pusilla</i> )	{ 34 68	Marchal 1920 Sugiura 1942	H	Alps
<i>glomerata</i>	34, 68	" 1939	H	Eur.—C. Asia
<i>rotundifolia</i> Harebell	34, 68	Bøcher 1936	H	North Reg.
	34, 55-56, 68	Guinochet 1942		
v. <i>hostii</i>	68	Sugiura 1942		
<i>portenschlagiana</i>	{ 34 102	Marchal 1920 Sugiura 1942	H	Dalmatia
<i>raddeana</i>	{ 34 102	Rosen 1931 Sugiura 1942	H	Caucasus
<i>abletina</i>	68	Sugiura 1942	H	S.E. Europe
<i>caespitosa</i>	68	" "	H	Alps
<i>collina</i>	68	" "	H	Caucasus

# CAMPANULA (cont.)

<i>garganica</i>	{ 68	Sugiura 1942	H	Alps
	102	" 1937b		
<i>kladniana</i>	68	" 1942	H	E. Europe
<i>morettiana</i>	68	" "	H	Alps
<i>pulla</i>	68	" "	H	"
<i>scheuchzeri</i>	68	Böcher 1936	H	"
<i>speciosa</i>	68	Sugiura 1942	H	S.W. Europe
<i>americana</i>	102	" "	H	N. America
<i>caucasica</i>	102	" "	—	Caucasus
<i>elegans</i>	102	" "	H	Siberia
<i>laciniata</i>	102	" "	H	Greece
<i>mirabilis</i>	102	" "	H	Caucasus
<i>rapunculoides</i>	102	" "	HV	Eur., A.M., Cauc.
<i>sibirica</i>	102	" "	H	C. Eur.—N. Asia

# WAHLENBERGIA $x = (8?) 9$

<i>gracilentia</i>	18	Gulline unp.	—	Australia
<i>gymnoclada</i>	18	"	—	"
<i>consimilis</i>	36	"	H	"
<i>quadrifida</i>	54	"	—	"
<i>saxicola</i>	72	"	H	Tasmania
<i>gracilis</i>	64	Sugiura 1942	H	N. Caled., S.E. As.

# ADENOPHORA $x = 17$

<i>bulleyana</i>	34	Sugiura 1942	H	Szechuan
<i>diplostoma</i>	34	Rosen 1931	H	China
<i>forrestii</i>	34	Sugiura 1942	—	"
<i>remotifolia</i>	37!	M. & S. 1935	H	Japan
<i>thunbergiana</i>	37!	" "	—	"
<i>stricta</i>	34	Sugiura 1942	H	"
<i>hakusanensis</i>	34, 51	M. & S. 1935	—	"
<i>lilifolia (communis)</i>	{ 34	Modilewski 1934	H(R)	C. Eur.—Sib.
	102	Sugiura 1942		
<i>ornata</i>	102	" "	H	W. China
<i>palustris</i>	102	" "	H	E. Asia
<i>potaninii</i>	102	" "	H	W. China
<i>lamarckii</i>	104	M. & S. 1936	H	E. Europe

# MICHAUXIA $x = 17$

<i>campanuloides</i>	34	Sugiura 1942	H	Asia Minor
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# PRISMATOCARPUS $x = 17$

<i>strictus</i>	34	Sugiura 1942	—	S. Africa
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# SYMPHANDRA $x = 17$

<i>hoffmanni</i>	34	Vilmorin & S. 1927b	H	Bosnia
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# TRACHELIUM $x = 17$

<i>coeruleum</i>	34	Sugiura 1942	H	S. Europe
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## 244 LOBELIACEAE

# ISOTOMA $x = 7$

<i>fluviatilis</i>	14	Subramanyam 1951	—	Australia
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**LOBELIA \*  $x=7, 9?$**

$x=7$

<i>brevifolia</i>	& 7 spp.	14	Bowden 1954	—	E: N. America
<i>cardinalis</i>	Cardinal Fl.	14	Vilmorin & S. 1927b	H	N. America
<i>cliffortiana</i>		14	Sugiura 1936b	—	Trop. Amer.
<i>urens</i>		14	Vilmorin & S. 1927b	—	Europe
<i>siphilitica</i>		14	Okuno 1937	HM	N. America
<i>as speciosa</i>		42	Sugiura 1936b		
<i>triquetra</i>		14, 42	Okuno 1937	—	S. Africa
<i>amoena</i>		28	Bowden 1954	H	E: N. America
<i>elongata</i>		28	" "	—	" "
<i>glandulosa</i>		28	" "	H	" "
<i>sessilifolia</i>		28	Sugiura 1937b	—	Kamchatka
<i>erinus</i>		28, 42	Vilmorin & S. 1927b	H	S. Africa
<i>richardsonii</i>		42	Sugiura 1937b	—	—
<i>tupa</i>	Blood L.	42	Vilmorin & S. 1927b	—	Chile, Peru

$x=9$

<i>ramosa</i>		18	Sugiura 1936a	—	Australia
<i>tenuior</i>		18	" 1937b	—	"

## 245 GOODENIACEAE

**GOODENIA  $x=8$**

<i>elongata</i>		16	W. D. Jackson unp.	—	Australia
<i>geniculata</i> v. <i>lanata</i>		16	" "	—	"
<i>ovata</i>		16	" "	H	"

**SCAEVOLA  $x=8$**

<i>lobelia</i>		16	Kausik 1939		Tropics
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**SELLIERA  $x=8$**

<i>radicans</i>		16	W. D. Jackson unp.	H	Aust., N.Z., Chile
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**VELLEYA  $x=8$**

<i>montana</i>		16	W. D. Jackson unp.	—	Australia
<i>paradoxa</i>		16	" "	H	

## 246 STYLIDIACEAE

**STYLIDIUM  $x=?$**

<i>adnatum</i>		36	Sugiura 1936a	H	Australia
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## 247 POLEMONIACEAE

**GYMNOSTERIS  $x=6$**

<i>nudicaulis</i>		12	MacMillan 1949	—	N. America
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**HUGELIA  $x=7$**

<i>virgata</i>		14	Flory 1937	H	N. America
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**PHLOX  $x=7$**

<i>amoena</i>		14	Flory 1934	H	S.E: U.S.A
<i>amplifolia</i>		14	" 1937	H	"

# PHLOX (cont.)

<i>arendsii</i>		14	Flory 1934	H	<i>cult</i>
<i>bifida</i>	Tenpoint Ph.	14	" 1937	H	E: U.S.A.
<i>carolina</i>		14 + 0-2B	Meyer 1944	H	S.E: U.S.A.
<i>divaricata</i>	Blue Ph.	14 + 0-1B		H	E: N. America
<i>drummondii</i>		14 (28)		H	Texas
<i>glaberrima</i>	Meadow Ph.	14 + 0-3B		H	E: U.S.A.
<i>maculata</i>	Perennial Ph.	14	Flory 1934	H	E: N. America
<i>nivalis</i>		14 + 0-4B	Meyer 1944	H	S.E: U.S.A.
<i>ovata</i>		14	Flory 1934	H	"
<i>paniculata</i>		14 + 0-10B	Meyer 1944	H	E: U.S.A.
<i>pilosa (argillacea)</i>		14	Flory 1934	H	E: N. America
<i>stellata</i>		14		H	<i>cult</i>
<i>stolonifera</i>		14		H	E: U.S.A.
<i>subulata</i>	Moss Ph.				
		14 + 0-13B, 28	Meyer 1944	H	
<i>adsurgens</i>	Periwinkle Ph.	14, 21	Flory 1934	H	W.: N. America
<i>suffruticosa</i>		14 + 0-1B, 21	Meyer 1944	H	<i>cult</i>
<i>buckleyi</i>		28	Flory 1937	H	W. Virginia
<i>douglasii (diffusa)</i>		28	" 1934	H	W: N. America
<i>hoodii</i>		28		H	

# GILIA $x = 7, 9$

$x = 7$

<i>aggregata</i>	Skyrocket G.	14	Flory 1937	H	W: N. America
<i>longiflora (collomia)</i>		14		H	" "
<i>rubra</i>	Texas Plume	14		H	N. America

$x = 9$

<i>achilleaeifolia</i>	Yarrow G.	18	V. Grant 1953	H	California
<i>angelensis</i>		18		—	"
<i>capitata</i>		18		H	W: N. America
<i>foetida</i>		18	Covas & S. 1946	—	Chile
<i>gilloides</i>		18	Grant 1950b	—	W: N. America
<i>laciniata</i>		18	Langlet 1936	H	Peru, Chile, Arg.
<i>latiflora</i>		18	Grant 1950b		W: N. America
<i>millefoliata</i>		18	" 1953		" "
<i>multicaulis</i>		18	Sugiura 1936b	H	California
<i>rigidula</i>		18	Flory 1937	H	W: N. America
<i>tricolor</i>	Bird's-Eyes	18	Grant 1953	H	California
<i>tenuiflora</i>		18	" 1950b	H	
<i>clivorum</i>		36			
<i>sinuata</i>		36			W: N. America

# COLLOMIA (GILIA) $x = 8$

<i>grandiflora</i>		16	Flory 1937	H	W: N. America
<i>heterophylla</i>		16		—	
<i>linearis</i>		16		H	
<i>coccinea (biflora)</i>		32		H	Chile

# LINANTHUS (GILIA) $x = 9$

<i>aureus</i>		18	Flory 1937	H	W: N. America
<i>densiflorus</i>		18		H	California
<i>dianthiflorus</i>		18		H	"
<i>dichotomus</i>		18		H	W: N. America
<i>parviflorus</i>		18		H	

**POLEMONIUM** \*  $x = 9$

<i>acutiflorum</i>		18	Nygren, L. & L. '48		N. Temp.
<i>boreale</i>		18	Flovik 1940		Arctic Eurasia
<i>caeruleum</i>	Jacob's Ladder	18	Griesinger 1937	HM	Europe
<i>reptans</i>	Sweat Root	18	Flory 1937	M	N. America
13 species		18	{ Griesinger 1937		

**CANTUA**  $x = ?$

<i>buxifolia</i>	Magic Fl.	c. 54	Flory 1937	H	Peru
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**COBAEA**  $x = ?$

<i>scandens</i>		52	Flory 1937, E.K.J.*	H	Mexico
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## 248 HYDROPHYLLACEAE

**ELLISIA**  $x = 5$

<i>nyctelea</i>		20	Cave & C. 1950	—	N. America
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**PHACELIA** \*  $x = 5, 7, 8, 9, 11, 12, 13$

<i>dubia</i>	& 4 spp.	10	Cave & C. 1944, '47	—	W: N. America
<i>maculata</i>		10	" 1950	—	" "
<i>divaricata</i>		20	" 1942	H	California
<i>greenei</i>		20	" 1950	—	
<i>racemosa</i>		14	" 1947	—	"
<i>ranunculacea</i>		28	" "	—	"
<i>dalesiana</i>		16	" 1950	—	"
<i>glabra</i>		16	" "	—	N. America
<i>irritans</i>		16	" 1942	—	California
<i>quickii</i>		16	" 1947	—	"
<i>bipinnatifida</i>		18	" 1950	—	S.E: U.S.A.
<i>purshii</i>		18	" "	—	S: U.S.A.
13 species		18	" '42, '44, '47, '50		
<i>grandiflora</i>		22	" 1944	H	California
<i>linearis</i>		22	" "	H	W: N. America
<i>parryi</i>		22	" 1947	H	S. California
<i>sericea</i>		22	" 1942	H	W: N. America
<i>tanacetifolia</i>		22	" "	H	California
<i>viscida</i>		22	" 1947	H	"
<i>whitlovia (minor)</i>		22	Chittenden 1928	H	"
26 species		22	Cave & C. '42, '44, '47, '50		
<i>californica</i>		22, 44	" 1944	—	"
5 species		22, 44	" '42, '44, '47		
<i>argentea</i>		44	" 1942	—	"
4 species		44	" '42, '47		
<i>lemmoni</i>		{ 44	" 1944	—	"
		48	" 1947		
<i>brachyloba</i>		24	" 1944	—	"
<i>cooperae</i>		24	" 1947	—	"
<i>suaveolens</i>		24	" 1950	—	"

<b>PHACELIA (cont.)</b>				
<i>bicolor</i>	26	Cave & C. 1950	—	W: N. America
<i>fremontii</i>	26	" 1942	—	California
<i>glandulifera</i>	26	" 1950	—	"
<i>gymnoclada</i>	26	" "	—	"
<i>leibergii</i>	26	" "	—	"
<b>EUCRYPTA <math>x=5, 6</math></b>				
<i>micrantha</i>	12	Cave & C. 1950	—	N. America
<i>chrysanthemifolia</i>	20	" 1944	—	"
<b>LEMMONIA <math>x=7</math></b>				
<i>californica</i>	14	Cave & C. 1950	—	California
<b>ERIODICTYON* <math>x=7</math></b>				
<i>angustifolium</i>	28	Cave & C. 1950	—	W: N. America
<i>californicum</i>	28	" 1947	—	California
3 species	28	" '47, '50		
<b>NAMA* <math>x=7</math></b>				
<i>aretioides</i>	14	Cave & C. 1950	—	N. America
<i>demissum</i>	14	" "	—	W: N. America
<i>stenocarpum</i>	14	" "	—	California
6 species	14	" "		
<i>densum</i>	28	" 1942	—	N. America
<i>lobbii</i>	28	" "	—	"
<i>jamaicense</i>	28	" 1950	—	W. Indies
<b>HESPEROCHIRON <math>x=8</math></b>				
<i>californicus</i>	16	Cave & C. 1950	—	California
<b>NEMOPHILA* <math>x=7, 9</math></b>				
<i>phacelioides</i>	14	Cave & C. 1950	H	E: N. America
<i>maculata</i> Spotted N.	18	" "	H	"
<i>menziesii</i>	18	" 1942	H	W: N. America
6 species	18	" "		
<b>DRAPERIA <math>x=9</math></b>				
<i>systyla</i>	18	Cave & C. 1947	—	California
<b>HYDROPHYLLUM* <math>x=9</math></b>				
<i>canadense</i>	18	Bowden 1940a	H	E: N. America
<i>capitatum</i>	18	Cave & C. 1942	H	W: N. America
<i>virginianum</i>	18	" 1950	H	E: N. America
4 species	18	" '42, '50		
<b>PHOLISTOMA <math>x=9</math></b>				
<i>auritum</i>	18	Cave & C. 1942	H	California
<i>membranaceum</i>	18	" "	—	"
<i>racemosum</i>	18	" 1947	—	"
<b>EMMENANTHE <math>x=9</math></b>				
<i>rosea</i>	18	Cave & C. 1950	—	W: N. America
<i>penduliflora</i> Yellow Bells	36	" 1942	H	California
<b>ROMANZOFFIA <math>x=11</math></b>				
<i>sitchensis</i>	22	Cave & C. 1950	H	W: N. America

# ROMANZOFFIA (cont.)

<i>suksdorfii</i>	22	Cave & C. 1942	—	W: N. America
<i>tracyi</i>	22	" 1947	—	" "
<b>MILTITZIA</b> $x = 12, 13$				
<i>glandulifera</i>	24	Cave & C. 1950	—	W: N. America
<i>lutea</i>	24	" "	—	" "
<i>parviflora</i>	24	" "	—	" "
<i>glaberrima</i>	26	" "	—	" "
<b>TURRICULA</b> $x = 13$				
<i>parryi</i>	26	Cave & C. 1947	—	W: N. America
<b>WIGANDIA</b> $x = 19$				
<i>kunthii</i>	38	Cave & C. 1947	—	Trop. America
<i>macrophylla</i>	38	" 1950	H	" "
<i>speciosa</i>	76	" "	—	" "
<i>vigieri</i>	44?	Sugiura 1936a	H	<i>cult</i>
<b>HYDROLEA</b> $x = 20$				
<i>spinosa</i>	40	Svensson 1925	H	Trop. America

## 249 BORAGINACEAE

<b>AMSINCKIA</b> $x = 4, 5, 6, 7. x_2 = 13, 15, 17, 19$				
<i>lunaris</i>	8	Ray 1954	—	California
<i>spectabilis</i>	10	" "	—	"
<i>douglasiana</i>	12	" "	—	"
<i>grandiflora</i>	12	" "	—	"
<i>furcata</i>	14	" "	—	"
<i>vernica</i>	14	" "	—	"
<i>retrorsa</i>	16, 26, 34	" "	—	N. America
<i>eastwoodiae</i>	24	" "	—	California
<i>gloriosa</i>	24	" "	—	"
<i>tessellata</i>	24	" "	—	"
<i>lycopsoides</i>	30	" "	H	"
<i>intermedia</i>	30, 34, 38	" "	H	"
<i>inepta</i>	36	" "	—	L. California
<i>angustifolia</i>	32	Strey 1931	—	Chile
<b>BRUNNERA (ANCHUSA)</b> $x = 6$				
<i>macrophylla</i>	<div> <div>12</div> <div>12</div> <div>16?</div> </div>	<div> <div>Britton 1951</div> <div>Smith 1932</div> <div>Strey 1931</div> </div>	H	Siberia, Cauc.
<b>CACCINIA</b> $x = (6) 12$				
<i>crassifolia</i>	24	Strey 1931	H	Armen.—Afghan
<i>strigosa</i>	24	" "	H	Persia
<b>CYNOGLOSSUM</b> * $x = (6) 12$				
<i>amabile</i>	24	Britton 1951	H	China, Tibet
<i>officinale</i> Hound's Tongue	24	" "	—	Eur., Asia
<i>zeylanicum</i> & 7 spp.	24	" "	H	India
<i>aequinoctiale</i>	48	" "	H	Kenya, Uganda

**MERTENSIA**  $x = (6) 12$

<i>elongata</i>		24	Britton 1951	H	Kashmir
<i>maritima</i>	Oyster Plant	24	L. & L. 1948	H	W. Europe
<i>sibirica</i>		24	Strey 1931	H	E. Siberia
<i>virginica</i>	Virg. Cowslip	24	Britton 1951	H	E: U.S.A.
<i>ciliata</i>		24, 48	" "	H	W: N. America

**ADELOCARYUM (PARACARYUM)**  $x = 6?$

<i>coelestinum</i>		c. 24	Strey 1931	H	N. India
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**ASPERUGO**  $x = 6?$

<i>procumbens</i>		48	Reese 1953	M	Eur., W. Asia, N Africa
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**LITHOSPERMUM**  $x = (6), 7, 8, 12$

<i>canescens</i>	Puccoon	14	Britton 1951	H	E: N. America
<i>tenuiflorum</i>		28	Strey 1931	—	Asia M.—India
<i>apulum</i>		28	Britton 1951	—	Medit.
<i>fruticosum</i>		28	Lorenzo-Andreu '51	H	S. Europe
<i>erythrorhizon</i>		28	Suzuka 1950	—	Japan
<i>officinale</i>	Gromwell	28	Britton 1951	B	Europe, W. Asia
<i>arvense</i>	Corn G.	16? 28	Suzuka 1950 Britton 1951,	—	Eurasia
		28	L. & L. 1944b		
<i>purpureo-coeruleum</i>		16	Reese 1952a	HM	Europe
<i>zollingeri</i>		16	Britton 1951	H	Java
<i>croceum</i>		24	" "	—	N. America
<i>incisum</i>		24	" "	—	"

**OMPHALODES**  $x = (6), 7$

<i>lusitanica (nitida)</i>		24	Britton 1951	H	Spain, Portugal
<i>linifolia</i>		28	" "	H	S.W. Europe
<i>verna</i>	Blue-eyed Mary	42	" "	H	S. Europe

**MYOSOTIS**  $x = 6, 7, 8, 9$

<i>sylvatica</i>	Wood Forget-me-not	14 18 18, 32	S. & S. 1941 Britton 1951, Geitler 1936	H	Eurasia
<i>sparsiflora</i>		18	" "	—	Eur., N. Asia
<i>alpestris (pyrenaica)</i>		24, 48, c. 72	" "	H	N. Reg.
<i>hispida</i>	Early F.	48	" "	H	Eur., S.W. Asia, N. Africa
<i>welwitschii</i>		48	Britton 1951	H	Spain
<i>arvensis</i>	Common F.	c. 48 c. 54	Strey 1931 Geitler 1936	H	N. Temp.
<i>palustris (scorpioides)</i>		64	L. & L. 1942	H	Eurasia
<i>caespitosa (laxa)</i>		c. 80	Strey 1931	H	North Reg.

**ANCHUSA**  $x = 6, 8, 9?$

<i>affinis</i>		16	Britton 1951	H	Abyssinia
<i>barrelieri</i>		16 18	Smith 1932 Lewitzky 1940	H	S. Eur., Asia M.
<i>capensis</i>		16	Britton 1951	H	S. Africa
<i>granatensis</i>		16	" "	H	Spain
<i>officinalis</i>	Alkanet	16	" "	V	Europe
<i>rlparia</i>		16	" "	H	Cent. Europe
<i>ochroleuca</i>		24	" "	H	Caucasus
<i>azurea (italica)</i>		32	" "	H	Medit.
var. "Opal"		32 + 1-4B	" "		

**CORDIA**  $x = 7, 8$

<i>glabra</i>	28	Britton 1951	H	Brazil
<i>alba</i>	32	" "	H	Trop. America
<i>angiocarpa</i>	32	" "	—	Cuba
<i>boissieri</i>	32	" "	H	Texas—Mexico
<i>leucosebestera</i>	32	" "	—	Cuba
<i>sebestena</i> Aloe Wood	32	" "	HM	W. Indies
<i>alliodora</i>	c. 72	" "	W	Trop. America
<i>rothii</i>	c. 72	" "	—	India
<i>tremula</i>	c. 80	" "	—	W. Indies

**PULMONARIA** \*  $x = 7, 11$

<i>officinalis</i> Lungwort	14	Tarnavski 1935	HM	Eur., Caucasus
<i>rubra</i> & 3 spp.	14	" "	H	S.E. Europe
<i>angustifolia</i>	14, 28	" "	H	Europe
<i>saccharata</i> Jerusalem Sage	14, 16	Strey 1931	Sp	<i>cult</i>
	22	Tarnavski 1935		
<i>affinis</i>	22	" "	H	France
<i>tuberosa</i>	22	" "	—	Europe
<i>mollis (mollissima)</i>	28	" "	H	C. Eur., N. Asia
<i>montana</i>	28	" "	—	C. Europe

**HELIOTROPIUM**  $x = 7-13$

<i>mendocinum</i>	14	Schnack & C. 1947	—	Chile
<i>supinum</i>	16	Britton 1951	M	S. Eur., S.W. Asia, N. Africa
<i>arborescens</i> Heliotrope	18	" "	HP	Peru
( <i>peruvianum</i> )				
<i>indicum</i>	22	" "	H	W. Indies
<i>europaeum</i>	24	Svensson 1925		
	32	Britton 1951	HM	Medit.
<i>amplexicaule</i>	26	" "	H	Argentina
	28	Covas & S. 1947		
<i>curassavicum</i>	26	Britton 1951	HM	U.S.A., W. Ind.
	28	Schnack & C. 1947		

**BORAGO**  $x = 8$

<i>officinalis</i> Borage	16	Britton 1951	Sp	Eur., N. Afr., As. Minor
<i>laxiflora</i>	32	Strey 1931	H	Corsica

**LOBOSTEMON** \*  $x = 7$

<i>fruticosus</i> & 9 spp.	14	Levy 1934	H	S. Africa
<i>echioides</i>	14, 42	" "	—	"
<i>glaucohyllus</i>	14, 28	" "	H	"
<i>bolusii</i>	28	" "	—	"
<i>decorus</i>	28	" "	—	"
<i>hispidus</i>	28	" "	—	"

**ONOSMA**  $x = 7$

<i>tauricum</i>	14	Britton 1951	H	S.E. Europe
<i>stellulatum</i>	28	" "	H	"

**ECHIU** \*  $x = 7, 8$

<i>hispidissimum</i>	14, 28	Litardière 1943	—	Medit.
<i>candicans</i> & 7 spp.	16	" "	H	Madeira
<i>lusitanicum</i>	16	Britton 1951	H	Spain, Portugal

# **ECHIUM (cont.)**

<i>plantagineum</i>	& 2 spp.	16	Britton 1951	HM	Medit.
<i>aculeatum</i>	& 3 spp.	16, 32	Litardière 1943		Canary Is.
<i>rossicum</i>		24	" "		S. Eur., Cauc.
<i>rosulatum</i>		32	Britton 1951		Spain
<i>vulgare</i>	Viper's Bugloss	32	" "	M	Eur., W. Asia
		16, 32	Litardière 1943		

# **NONNEA (NONEA) $x = 7, 8$**

<i>lutea</i>		14	Britton 1951		Europe
<i>rosea</i>		16	" "	H	Caucasus
<i>versicolor</i>		16	Gusuleac & T. 1935		
<i>decumbens</i>		c. 32	Strey 1931	—	W. Medit.

# **LAPPULA (ECHINOSPERMUM) $x = 8?$**

<i>myosotis</i>		c. 48	Strey 1931	M	Eur., S.W. Asia
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# **LYCOPSIS (ANCHUSA) $x = 8$**

<i>orientalis</i>		16	Strey 1931		S. Eur., S.W. Asia
<i>arvensis</i>	Bugloss	c. 54	Svensson 1925		Eurasia

# **MOLTKIA $x = 8$**

<i>petraea</i>		16	Britton 1951	H	Greece
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# **CERINTHE $x = 8, 9$**

<i>retorta</i>		16	Strey 1931	H	Greece
<i>major</i>	Honeywort	16	Britton 1951	HM	Switzerland
<i>glabra (alpina)</i>		18		H	Eur., Alps
<i>minor</i>		18		HM	S. Europe

# **EHRETIA $x = 8, 10$**

<i>microphylla</i>	Philippine Tea	32	Britton 1951	BH	S.E. Asia
<i>(buxifolia)</i>					
<i>thyrsiflora</i>		32	" "	H	China, Japan
<i>anacua</i>		40	" "	—	Texas, Mexico

# **SYMPHYTUM $x = 9, 10$**

<i>caucasicum</i>		c. 36	Strey 1931	H	Caucasus
<i>officinale</i>	Comfrey	36	Suzuka 1950	HM	Eur., W. Asia
<i>uplandicum</i>		36	Vaarama, L. & L. '48	H	<i>cult</i>
<i>peregrinum</i>		36	Maude 1939	H	E. Caucasus
<i>asperum</i>	Prickly C.	40	Britton 1951	H	Russia—Persia
<i>tauricum</i>		40	" "	H	S. Russia
<i>bulbosum</i>		c. 72	Strey 1931	H	Europe
<i>tuberosum</i>		c. 72		HM	Eur., S.W. Asia

# **ALKANNA $x = 11$**

<i>orientalis</i>		22	Britton 1951	D?	E. Medit.
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# **PENTAGLOSSA (CARYOLOPHA, ANCHUSA) $x = 11$**

<i>sempervirens</i>		22	Britton 1951	H	W. Europe
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## Group XVIII

### SOLANALES

250, 251

HS

### PERSONALES

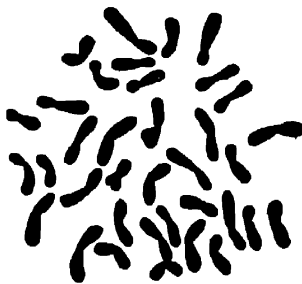
252–259

HS(T)

### LAMIALES

260–264

HS(T)



*Glechoma hederacea*



## 250 SOLANACEAE

### PETUNIA $x = 7, 9$

<i>axillaris</i> ( <i>nyctaginiflora</i> )	14	Kostoff <i>et al.</i> 1935	H	Argentina
<i>integrifolia</i> ( <i>violacea</i> )	14	Dermen 1931a	H	
	(28)	Levan 1937a		
<i>hybrida</i> ( <i>ax.</i> $\times$ <i>integ.</i> )	(21, 28, 35)	Dermen 1931a	H	<i>cult</i>
<i>parodii</i>	14 + 0-1B	Sullivan 1947	—	Argentina
<i>parviflora</i>	18	Ferguson & C. 1932	—	N. & S. Amer.

### CESTRUM $x = 8$

<i>nocturnum</i>	Night Jasmine	c. 16	Bhaduri 1933	H	W. Indies
<i>parqui</i>		16	Schnack & C. 1947	H	Chile
<i>purpureum</i> ( <i>elegans</i> )		16	Carniel 1952	H	Mexico

### FABIANA $x = 9$

<i>imbricata</i>	False Heath	18	Goodspeed 1933	M	Peru
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### NICANDRA $x = 9 +$ isochromosome

<i>physaloides</i>		19, 20 (40)	Darlington & J. '45	HM	Peru
		21?	Sinha 1951a		

### NIEREMBERGIA $x = 9$

<i>frutescens</i>	Tall Cup Fl.	18	Goodspeed 1933	H	Chile
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### NICOTIANA $x = 9, 10, 12$

#### S. 1. PETUNIOIDES

##### $x = 9$

<i>alata</i>	Jasmine Tobacco	18	Goodspeed 1945	H	Brazil
<i>bonariensis</i>		18	"		"
<i>langsdorffii</i>		18	"		"
<i>sanderæ</i>		18	"	H	<i>cult</i>

##### $x = 10$

<i>longiflora</i>		20	"	H	Chile
<i>plumbaginifolia</i>		20	"	H	Mexico—Arg.

##### $x = 12$

<i>acaulis</i>		24	"	—	Argentina
<i>acuminata</i>		24	"	—	S. America
<i>attenuata</i>	Coyote T.	24	"	M	Chile
<i>corymbosa</i>		24	"	—	Chile, Arg.
<i>linearis</i>		24	"	—	" "
<i>miersii</i>		24	"	—	" "
<i>noctiflora</i> ( <i>cavanillesii</i> )		24	"	—	C. Argentine
<i>pauciflora</i> ( <i>caudigera</i> )		24	Goodspeed 1945	—	Chile
<i>palmeri</i>		24	"	—	S.W.: U.S.A.
<i>petunioides</i> ( <i>pampasana</i> )		24	"	—	N. Argentine
<i>sylvestris</i>		24	"	—	N.W. Argentine
<i>trigonophylla</i>	Desert T.	24	"	M	S.W.: U.S.A., Mexico
<i>undulata</i>		24	"	—	Andes
<i>wigandioides</i>		24	"	—	"
<i>arentsii</i>		48	"	—	Peru, Bolivia
<i>bigelovii</i>	Indian T.	48	"	M	W.: U.S.A.
<i>clevelandii</i>		48	"	—	"
<i>nudicaulis</i>		48	"	—	N. Mexico
<i>nesophila</i>		48	"	—	Mexico
<i>repanda</i>		48 (96)	"		
<i>stocktonii</i>		48	"		

# NICOTIANA (cont.)

## S. 2. RUSTICA

<i>benavidesii</i>	24	Goodspeed 1945	—	Peru
<i>cordifolia</i>	24	" "	—	Juan Fern.
<i>knightiana</i>	24	" "	—	S. Peru
<i>raimondii</i>	24	" "	—	Peru
<i>solanifolia</i>	24	" "	—	N. Chile
<i>thyrsoflora</i>	24	" "	—	N.W. Peru
<i>glauca</i> Tree T.	24	" "	—	N.W. Argentine
<i>paniculata</i>	24	" "	—	Peru
<i>rustica</i> Aztec T.	48	" "	IM	"

## S. 3. TABACUM

<i>glutinosa</i>	24	" "	—	"
<i>tomentosa</i> Giant T.	24	" "	—	"
<i>tomentosiformis (rusbyi)</i>	24	" "	—	Bolivia
<i>otophora</i>	24	" "	—	Bolivia, Arg.
<i>setchellii</i>	24	" "	—	N. Peru
<i>tabacum</i> Common T.	48	" "	IM	Peru, cult
(72), (96) Goodspeed 1930				
<i>digluta (glut. × tabacum)</i>	72	Clausen & G. 1925	—	expt.
<i>tabacum × Petunia parodii</i>	31	Pogliaga 1952	—	expt.

## S. 4. SUAVEOLENTES

x = 8

<i>exigua</i>	32	Wheeler 1935	—	Queensland
<i>maritima</i>	32	" "	—	S. Australia
<i>velutina</i>	32	" 1945	—	Australia
<i>suaveolens</i>	32, 64	" 1935	H	S.E. Australia

x = 9

<i>gossei</i>	36	" "	—	C. Australia
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x = 10

<i>goodspeedii</i>	40	" "	—	S. Australia
<i>megalosiphon</i>	40	" "	—	N.E. Australia

x = 11

<i>rotundifolia</i>	44	" "	—	S.W. Australia
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x = 12

<i>debneyi</i>	48	" "	—	N.E. Austr., N. Caled.
<i>fragrans</i>	48	" 1945	—	S. Pacific

x<sub>1</sub> = (9 + 10)

<i>benthamiana</i>	38	" "	—	Australia
<i>excelsior</i>	38	" "	—	"

x<sub>1</sub> = (10 + 11)

<i>occidentalis</i>	42	" "	—	"
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## SCHIZANTHUS x = 10

<i>pinnatus</i>	20	Sugiura 1937b	H	Chile
<i>retusus</i>	20	" "	H	Chile, Peru
<i>wisetonensis</i>	20	" 1936b	H	cult

## BROWALLIA x = 11

<i>demissa</i>	22	Sugiura 1936a	H	S. America
<i>grandiflora</i>	22	" "	H	Peru
<i>viscosa</i>	22	" "	H	S. America
<i>speciosa</i>	44	" "	H	Colombia

<b>BRUNFELSIA</b> $x = 11$						
<i>americana</i>	22	Bhaduri 1933	H			Trop. America
<i>calycina</i>	22	E.K.J. *	H			Brazil
<b>QUINCULA</b> $x = 10, 11$						
<i>lobata</i>	20, 22, 24	Menzel 1950	H			Kans.—Mex.
<b>SALPIGLOSSIS</b> $x = 11$						
<i>sinuata</i>	44	Vilmorin & S. 1928	H			Chile
<b>ACNISTUS</b> $x = 12$						
<i>parviflorus</i>	24	Ratera 1943	—			Trop. America
<b>CAPSICUM</b> $x = 12$						
<i>annuum</i>	Chilli, Red 24 (36, 48)	Pal <i>et al.</i> 1941	SpVVit			Trop. Amer., <i>cult</i>
	Pepper, Paprika 24	Sinha 1950a				
<i>as baccatum</i>	24	Huskins & L. C. '30				
	(12)	Christensen & B. '43				
<i>as frutescens</i>	Cayenne P., 24	Sinha 1950a				
	Bird P. (48)	Greenleaf 1947				
<i>microcarpum</i>	24	Schnack & C. 1947	—			W. Indies
<b>CYPHOMANDRA</b> $x = 12$						
<i>betacea</i>	Tree Tomato 24	Vignoli 1945a	F			S. America
<b>DATURA</b> * $x = 12$						
<i>alba</i>	24	Suzuka & K. 1949	—			O.W. Tropics
<i>fastuosa</i>	24	Vilmorin & S. 1927a	M			Tropics
<i>ferox</i>	& 4 spp. 24	Bergner 1943	M			China
<i>meteloides</i>	& 2 spp. 24	Satina 1953	M			W: N. Amer.
<i>stramonium</i>	Thorn A. { 24 (12, 25)	Satina <i>et al.</i> 1941	HM			Cosmop.
	Jimson W. (48)	Belling & B. 1923				
<b>GRABOWSKIA</b> $x = 12$						
<i>duplicata</i>	24	Ratera 1943	—			S. America
<b>JABOROSA</b> $x = 12$						
<i>integrifolia</i>	24	Vignoli 1945a	H			Argentina
<b>LYCIUM</b> $x = 12$						
<i>cestroides</i>	24	Schnack & C. 1947	—			Brazil
<i>chinense</i>	Box Thorn 24	Sugiura 1936b	H			China
<i>ciliatum</i>	24	Ratera 1947	—			Brazil
<i>cuneatum</i>	24	„ 1943	—			Bolivia
<i>elongatum</i>	24	„ 1947	—			Chile
<b>LYCOPERSICUM (SOLANUM)</b> $x = 12$						
<i>esculentum</i>	Tomato 24	Barton 1950	VF			<i>cult</i> , Peru
	(12, 25, 36, 48)	Rick 1945				
	(48)	Upcott 1935				
<i>cheesemannii</i>	24	Luckwill 1943				Galapagos
<i>glandulosum</i>	24	„ „				Peru
<i>hirsutum</i>	24	„ „				Peru, Ecuador
<i>peruvianum</i>	24	„ „				Peru
<i>pimpinellifolium</i>	24	„ „				„
<i>pissisi</i>	24	„ „				Peru, Chile

<b>MARGARANTHUS</b>	$x = 12$				
<i>solanaceus</i>		24	Menzel 1950	—	Texas
<b>SALPICHROA (WITHANIA)</b>	$x = 12$				
<i>rhomboidea</i>	Huevo de Gallo	24	Vilmorin & S. 1928	V	Argentina
<i>(origanifolia)</i>					
<b>SCOPOLIA</b>	$x = 12$				
<i>lurida</i>		24	Vilmorin & S. 1928	H	Himalayas
<b>SOLANDRA</b>	$x = 12$				
<i>grandiflora</i>		22-24	Campin 1924	H	Jamaica
		24	E.K.J.*		
<b>PHYSALIS*</b>	$x = 12$				
<i>alkekengi</i>	Winter Cherry, Chinese Lantern Pl.	24	Menzel 1951	FH	Eur.—Japan
<i>divaricata</i>		24	Baldwin & S. 1951b	—	O.W. Tropics
<i>francheti</i>		24	Sinha 1951b	H	Japan
<i>ixocarpa</i>	Tomatillo	24	Menzel 1951	FH	S: U.S.A., Mex.
<i>philadelphica</i>	Purple W. Ch.	24	Vilmorin & S. 1928	FH	N. America
<i>pruinosa</i>	Strawb.-Tomato	24	Menzel 1951	F	E: U.S.A.
<i>pubescens</i>	Barbados G.	24	" "	F	Trop. America
<i>virginiana</i>	& 20 spp.	24	" "	F	N. America
<i>viscosa</i>		24	" "	F	S: U.S.A.—Arg.
		24	Covas & S. 1946		
<i>peruviana</i>	Cape Gooseb.	24	Yamamoto & S. '32	F	S. America
		48	Menzel 1951		
<i>angulata</i>	Ground Cherry	48	" "	F	Trop. Amer., Ind.
<i>minima</i>	Sunberry	48	Bhaduri 1933	FV	O.W. Tropics
<b>SOLANUM *</b>	$x = 12, 23$				
(i) Non-Tuberous Group					
$x = 12$					
<i>aculeatissimum</i>		24	Brock 1952	H	Trop. As. & Am.
<i>adventitum</i>		24	Westergaard 1948	—	Hungary
<i>aethiopicum</i>		24	Vilmorin & S. 1928	H	Trop. Afr. & Asia
<i>angustifolium</i>		24	Ratera 1943	—	Argentina
<i>argentinum</i>		24	" "	—	"
<i>auriculatum</i>		24	Vilmorin & S. 1928	H	Trop. Asia
<i>basilobum</i>		24	Ratera 1943	—	Argentina
<i>capsicastrum</i>	Christmas Ch.	24	Vilmorin & S. 1928	H	Brazil
<i>cornutum</i>		24	" "	H	Mexico
<i>dillenianum</i>		24	Westergaard 1948	—	Sweden
<i>dulcamara</i>	Bittersweet	24	Vilmorin & S. 1928	H	Eur., N. Asia
<i>eleagnifolium</i>		24	Heiser & W. 1948	—	U.S.A.
<i>gracile</i>		24	Vilmorin & S. 1928	HV	Trop. America
<i>insulae-paschalis</i>		24	Westergaard 1948	—	Easter Island
<i>jasminifolium</i>		24	Ratera 1943	—	Brazil
<i>jasminoides</i>		24	Vilmorin & S. 1928	H	"
<i>indicum</i>		24	Bhaduri 1935	M(V)	O.W. Tropics
<i>integrifolium</i>	Scarlet E.P.	24	Vilmorin & S. 1928	H	Africa
<i>marginatum</i>		24	" "	—	Trop. Africa
<i>melongena</i>	Egg Plant, 24 (36, 48) Aubergine	48	Janaki-Ammal 1934	V	O.W. Tropics
<i>muricatum</i>	Pepino	24	Vilmorin & S. 1928	V	Peru
<i>nitidi-bacatum</i>		24	Westergaard 1948	—	Arg., Bolivia
<i>ovigerum</i>		24	Vazart 1950		

# SOLANUM (cont.)

<i>pearcei</i>	24	Avanzi 1949	—	Chile
<i>pinnatum</i>	26 (24–28)	" "	—	"
<i>pseudocapsicum</i>	Jerusalem Ch.	Vilmorin & S. 1928	H	Old World
<i>sarachioides</i>	24	Ratera 1943	—	Bolivia
<i>seafortianum</i>	24	Sinha 1950b	—	Trop. America
<i>tomatillo</i>	24	Jørgensen 1928	V	Chile
<i>torreyi</i>	24	La Cour 1952	—	W: N. Amer.
<i>torvum</i>	24	Bhaduri 1933	V	O.W. Tropics
<i>trilobatum</i>	24	" "	(V)	"
<i>verbascifolium</i>	24	Ratera 1943	(V)	"
<i>violaeifolium</i>	24	" "	—	Brazil
<i>wendlandi</i>	24	Vilmorin & S. 1928	H	Costa Rica
<i>warszewiczii</i>	24	Sinha 1950b	H	?
<i>xanthocarpum</i>	Thorny Nightsh.	Bhaduri 1933	HMV	O.W. Tropics
<i>luteum</i> ( <i>nigrum</i> )	48	Jørgensen 1928	FV	Cosmop.
<i>miniatum</i> & 8 spp.	48	Westergaard 1948	V	"
<i>guineense</i> Sunberry	72	Vilmorin & S. 1928	FV	"
( <i>nigrum</i> )				
<i>memphiticum</i>	72	Jørgensen 1928	—	"
<i>nigrum</i> , s.l. B. Nightsh.	24, 48, 72	Bhaduri 1933		
	24, 72	Stebbins & P. 1949	FV	"
	(96, 144)	Jørgensen 1928		
<i>roberti-eliae</i>	72	Westergaard 1948	—	
<i>robinsonianum</i>	72	Jørgensen 1928	—	Juan Fernandez
x = 23				
<i>aviculare</i> Poroporo	46	Baylis 1954	H	Australia, N.Z.
<i>laciniatum</i>	92	" "	H	" "
(ii) Tuberous Group				
(a) Wild Species				
x = 12				
<i>ehrenbergii</i>	24	Hawkes unp.	—	Mexico
<i>etuberosum</i>	24	"	—	Chile
<i>jamesii</i>	24	H. B. Smith 1927	—	Peru
<i>lanciforme</i>	24	Hawkes 1944	—	Mexico
<i>morelliforme</i>	24	Hawkes unp.	—	"
<i>phureja</i>	24	Rybin 1933	R	Bolivia
<i>pinnatisectum</i>	24	Hawkes unp.	—	Mexico
<i>polyadenium</i>	24	Bukasov 1935	—	"
<i>simplicifolium</i>	24	Hawkes 1944	—	Argentina
<i>tarijense</i>	24	"	—	Bolivia
<i>toralapanum</i>	24	Hawkes unp.	—	"
<i>vernei</i>	24	"	—	Argentina
<i>verrucosum</i>	24	Bukasov 1935	—	Mexico
<i>violacei-marmoratum</i>	24	Hawkes unp.	—	Bolivia
<i>vernei</i>	24	Brücher & R. 1953	—	Argentina
<i>capsicibaccatum</i>	24	Hawkes 1954	—	Bolivia
<i>sanctae-rosae</i>	24	" "	—	Argentina
<i>yungasense</i>	24	" "	—	Bolivia
<i>bulbocastanum</i>	{ 24 36	Bukasov 1935 Hawkes unp.	—	Mexico
<i>chacoense</i>	{ 24 36	H. B. Smith 1927 Hawkes unp.	—	Paraguay

# SOLANUM (cont.)

<i>commersonii</i>	Swamp P.	{ 24 36	Koopmans 1951 Rybin 1933	—	Argentina
<i>maglia</i>	Maglia	{ 24 36	Hawkes unp. Rybin 1933	R	Chile
<i>millanii</i>		24, 36	Bukasov & L. 1935	—	Argentina
<i>cardiophyllum</i>		36	Hawkes 1944	R	Mexico
<i>acaule</i>		{ 36, 48 48	Brücher & R. 1953 Swaminathan 1954	—	Peru, Bol., Arg.
<i>antipoviczii</i>		48	Rybin 1933	—	Mexico
<i>colombianum</i>		48	" "	—	Ven., Col., Ecuad
<i>fendleri</i>	Navajo P.	48	Smith 1927	R	Mexico
<i>longiconicum</i>		48	Hawkes unp.	—	Costa Rica
<i>polytrichon</i>		48	"	—	Brazil
<i>stoloniferum</i>		48	"	—	Mexico
<i>sucrense</i>		48	Hawkes 1944	—	Bolivia
<i>tuquerrense</i>		48	Hawkes 1954	—	Colom., Ec.
<i>demissum</i>		72	Koopmans 1951	—	Mexico
<i>spectabilis</i>		72	Swaminathan & H. '54	—	"
<i>querreroense</i>		72	" "	—	"
<i>brachycarpum</i>		72	Hawkes 1954	—	"
<i>moscopanum</i>		72	" "	—	Colombia

About 100 other species, 70 diploid and 30 tetraploid, were given in the previous edition. These now seem to be of doubtful value and are therefore omitted pending further study.

## (b) Cultigens, Clonal Species and Hybrids

$x = 12$

<i>stenotomum</i>		24	Rybin 1933	R	Peru, Bolivia
<i>rybinii</i>		{ 24 (48) 36	" " " 1940 Mitra 1949	R	Colombia
<i>chaucha</i>		36	Rybin 1933	R	Peru, Bolivia
<i>andigenum</i>		48	Swaminathan 1954	R	Andes
		(24)	Müntzing 1937c		
<i>tuberosum</i>	Potato	48	Swaminathan 1954	AR	Peru, cult
		(24)	Lamm 1937		
		(96)	Vilmorin & S. 1928		
<i>curtilobum</i>		60	Rybin 1933	R	Peru, Bolivia
<i>edinense</i>		60	" 1930	R	Hab.?
<i>salamanti</i>		60	Hawkes 1944	—	Mexico
<i>semidemissum</i>		60	Rybin 1933	—	"
<i>tub. × antipoviczii</i>		72	Ivanov 1939	R	expt.
<i>antipo-phureja</i>		72	Koopmans 1951	R	"
<i>antipo-chacoense</i>		72	" "	R	"
<i>demisso-rosam</i>		120	" "	R	"

## SARACHA $x = 12$

<i>procumbens</i>		24	Menzel 1950	—	Peru
<i>viscosa</i>		24	" "	—	Peru, Chile
<i>umbellata</i>		48	Krenke 1930	H	Peru

## WITHANIA $x = 12$

<i>somnifera</i>		48	Bhaduri 1933	M	O.W. Trop., Med S.W. Asia
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<b>ATROPA</b> $x = 12$						
<i>belladonna</i>	Deadly Night-shade	{	50	Homedes 1943	M	Eur., S.W. Asia, India Spain Himalayas
			72	Vilmorin & S. 1928		
<i>baetica</i>			72	Fardy 1940	—	
<i>acuminata</i>			72	Dutt 1952a	—	
<b>HYOSCYAMUS</b> $x = 14, 17$						
<i>muticus</i>	Indian Henbane	28	Griesinger 1937	M	Egypt, Asia M.	
<i>niger</i>	Henbane	{	33, 34	" "	Eur., W. Asia, Himalayas	
			34	Vaarama 1950		
<b>DUBOISIA</b> $x = 30$						
<i>leichtardtii</i>		60	Barnard 1949	M	S.E. Australia	
<i>myoporoides</i>		60	" "	HM	E. Australia	

## 250a NOLANACEAE

<b>NOLANA</b> $x = 12$						
<i>atriplicifolia</i>		24	Datta 1933a	—	Chile, Peru	
<i>prostrata</i>		24	" "	H	"	
<i>grandiflora</i>		24	Sugiura 1936b	H	"	
<i>tenella</i>		24	" "	H	"	

## 251 CONVULVULACEAE

<b>CUSCUTA</b> * $x = 7, 15$						
<i>europaea</i>	Gr. Dodder & 3 spp.	14	Finn 1937	Par	Eur., S.W. Asia	
<i>approximata</i>		28		Par	Spain	
<i>monogyna</i>		28		Par	Eur., S.W. Asia	
<i>reflexa</i>		28		ParM	India	
<i>epilinum</i>		42		Par	E. Eur., Asia	
<i>arvensis</i>		56		Par	N. America	
<i>campestris</i>		56	Fogelberg 1938	Par		
<i>pentagona</i>		c. 56	" "	Par		
<i>glomerata</i>	& 3 spp.	30		Par		
<i>gronovii</i>		60		Par		
<i>cephalanthi</i>		60		Par		

<b>CONVOLVULUS</b> $x = 10, 11$						
<i>pluricaulis</i>		20	Singh 1951		India	
<i>tricolor</i>		20	Kano 1929	H	S. Europe	
<i>elongatus</i>		22	Heitz 1926	—	Canaries	
<i>spithameus</i>		22	Wolcott 1937	H	N. America	
<i>siculus</i>		44	Heitz 1926	H	Medit.	
<i>undulatus</i>		c. 22		H	"	
<i>scammonia</i>	Scammony	c. 24		M	E. Medit.	
<i>arvensis</i>	Lesser Bindweed	50	Wolcott 1937		N. Temp.	

<b>CALYSTEGIA</b> $x = 11, 12$						
<i>hederacea</i>		22	Nakajima 1931		Ind., China, Afgh.	
<i>soldanella</i>	Sea B.	22	Kano 1929	(V)	Temp.	
<i>sepium</i>	Bindweed	{ 22	" "	M(V)		
		24	Felfoldy 1947			

<b>CRESSA</b> $x = 14$					
<i>truxillensis</i>		28	Heiser & W. 1948	—	Peru
<b>QUAMOCLIT (IPOMOEA, MINA)</b> $x = 14, 15$					
<i>coccinea</i>	Star Glory	28	King & B. 1937	H	Arizona
<i>angulata</i>		{ 28	Nakajima 1931		Brazil
		{ 30	Kano 1929		
<i>lobata (versicolor)</i>		{ 28	King & B. 1937	H	Mexico
		{ 30	Sugiura 1936b		
<i>pennata</i>	Cypress Vine	30	King & B. 1937	H	Trop. America
<i>sloteri (pennata × coccinea)</i>		58	" "	H	cult
<b>EXOGENIUM (IPOMOEA)</b> $x = 14?$					
<i>purga</i>	Jalap	24-28	Heitz 1926	HM	Mexico
<b>ARGYREIA</b> 15					
<i>nervosa</i>		30	Watanabe 1939		E. Asia
<b>CALONYCTION (IPOMOEA)</b> $x = 15$					
<i>aculeatum</i>	Moonflower	30	Kano 1929	H(V)	Tropics
<i>(speciosum)</i>					
<i>muricatum</i>		30	Nakajima 1931	H(V)	
<b>DICHONDRA</b> $x = 15$					
<i>repens</i>		30	Covas & S. 1947	—	W. Indies
<b>HEWITTIA</b> $x = 15$					
<i>sublobata (bicolor)</i>		30	Watanabe 1939	H	O.W. Tropics
<b>MERREMIA (IPOMOEA)</b> $x = 15$					
<i>distillatoria</i>	Ulan	30	King & B. 1937	M	India, Malaya
<i>(campanulata)</i>					
<i>gemella</i>		58	Watanabe 1939		S.E. Asia—Trop. Aust.
<b>OPERCULINA (IPOMOEA)</b> $x = 15$					
<i>dissecta</i>		30	King & B. 1937	—	Trop. America
<i>tuberosa</i>		30	" "	H	Tropics
<i>turpethum</i>	Ching-Chaw	30	Watanabe 1939	M	Tr. Afr. & Asia
<b>STICTOCARDIA (IPOMOEA)</b> $x = 15$					
<i>campanulata</i>		30	Watanabe 1939	—	Trop. Africa
<b>IPOMOEA (PHARBITIS) *</b> $x = 15$					
<i>biloba</i>	Pohne	30	Sugiura 1936a	FoSb(V)	Tropics
<i>carnea</i>		30	Rao 1947a		S. America
<i>carolina</i>		30	Wolcott 1937		W. Indies
<i>nil</i>	Jap. M.G. & 14 spp.	30	King & B. 1937	H	Tropics
<i>pandurata</i>	Wild Potato Vine	30	" "	H	S.E.: U.S.A.
<i>pulchella</i>		30	Rao 1947a	H	Ceylon
<i>reptans</i>		30	" "		O.W. Tropics
<i>learii</i>	Blue Dawnflower	{ 30	King & B. 1937		Trop. America
		{ 32?	Rao 1940		
<i>staphylina</i>		32?	" "		India, Malaya
<i>ramouri</i>		60	King & B. 1937		Cuba
<i>batatas</i>	Sweet Potato	90	Ting & K. 1953		Trop. America

## 252 SCROPHULARIACEAE

### (1) NON-PARASITIC GROUP

<b>ZALUZIANSKIA (NYCTERINIA)</b>		$x = 6$			
<i>capensis</i>	12	Sugiura 1936a	H		S. Africa
<i>villosa (selaginoides)</i>	12	" "	H		"
<b>ALONSOA</b>		$x = 6$			
<i>warscewiczii (grandiflora)</i>	24	Propach 1934	H		Peru
<b>LINARIA*</b>		$x = 6, 7, 8$			
<i>alpina</i>	12	Favarger 1949b	H		Eur. Alps
<i>barbata</i>	12	M. & S. 1935	—		S. Africa
<i>dalmatica</i>	12	" "	H		S.E. Europe
<i>repens</i>	12	Tjebbes 1928	H		Europe
<i>reticulata</i>	& 32 spp.	Heitz 1927	H		Port., N. Africa
<i>vulgaris</i>	Toadflax	Vaarama, L. & L. '48	M		Eur., Caucasus
<i>triphylla</i>	12, 14	East 1933	H		Medit.
<i>panicicii</i>	16	Heitz 1927	—		Macedonia
<i>chalepensis</i>	24	" "	—		S. Eur., S.W. Asia
<b>CHAENORRHINUM (LINARIA)</b>		$x = 7$			
<i>minus</i>	14	Champagnat 1952	—		Eur., W. Asia
<i>origanifolium</i>	14	" "	—		Iber. Penin.
<i>littorale</i>	14	Heitz 1927	—		E. Medit.
	42	Champagnat 1952	—		
<b>COLLINSIA</b>		$x = 7$			
<i>bartsiaefolia</i>	c. 14	Hiorth 1933	—		California
<i>bicolor</i>	14	" "	H		"
<i>v. candidissima</i>	14	Sugiura 1936b	H		"
<i>barts. × bicolor</i>	(21, 28)	Hiorth 1933	—		<i>expt.</i>
<b>DOPATRIUM</b>		$x = 7$			
<i>lobelioides</i>	14	Raghavan & S. 1942	—		India
<b>HEBENSTRETIA</b>		$x = 7$			
<i>dentata</i>	14	Sugiura 1939	H		S. Africa
<i>virgata</i>	14	" 1940	—		"
<b>ERINUS</b>		$x = 7$			
<i>alpinus</i>	14	Reese 1953	H		S. Eur., N. Afr.
	14	Favarger 1953			
<b>CYMBALARIA (LINARIA)</b>		$x = 7$			
<i>murals</i>	Wall Ivy	14	Eichhorn 1950	—	Europe
<i>pallida</i>		14	Heitz 1927	—	Italy
<i>aequiriloba</i>		c. 42	Bruun 1932b	—	Corsica
<i>hepaticifolia</i>		c. 42	Heitz 1927	H	"
<i>pilosa</i>		42	Bruun 1932b	H	Italy
<b>REHMANNIA</b>		$x = 7$			
<i>angulata</i>		28	Sugiura 1936a	H	China
<i>glutinosa</i>		56	Suzuka & K. 1949	H	"
<b>STEMODIA</b>		$x = 7$			
<i>viscosa</i>		42	Raghavan & S. 1942	—	Ind., Afghan.

<b>VANDELIA</b> $x = 7$					
<i>crustacea</i>		42	Raghavan & S. 1940b	—	Tropics
<b>DIGITALIS</b> $x = (7) 28$					
<i>ambigua</i>	Yellow F.	56	Buxton & N. 1928	H	S. Europe
<i>canariensis</i>		56	Haase-Bessel, T. '31	—	Canary Is.
<i>dubia</i>		56	Regnart 1935	H	Balearics
<i>nervosa</i>		56	Buxton & D. 1934	—	Cauc., Persia
<i>orientalis</i>		56	" "	H	Greece, Asia M.
<i>purpurea</i>	Foxglove	56	Buxton & N. 1928	HM	Europe
<i>lanata</i>	Grecian F.	56	Buxton & D. 1934	M	Danube
<i>viridiflora</i>		56	Buxton & N. 1928	—	Greece, Maced.
<i>ferruginea</i>		56	Buxton & D. 1934	H	S. Eur., Asia M.
		70	Yakar 1945		
<i>erioistachya</i>		112	Buxton & D. 1934	—	S. Europe
<i>lutea</i>		112	" "	H	"
<i>obscura</i>		112	" "	H	Spain
<i>mertonensis</i> ( <i>purp.</i> $\times$ <i>ambigua</i> )		112	" 1932	H	cult
<b>MIMULUS (DIPLACUS)</b> $x = 7, 8$					
<i>cardinalis</i>	Monkey Flower	16	Sugiura 1940	H	W: U.S.A.
<i>betonicifolia</i>		32	" "	—	Chile
<i>guttatus</i> ( <i>langsдорffii</i> )		28	Clausen <i>et al.</i> 1950	H	W: N. America
		48	Maude 1940		
<i>tigrinus</i>		48	Sugiura 1944	H	cult
		c. 64	Brozek 1932		
<i>quinquevulnerus</i> ( <i>luteus</i> )		c. 64	" "	H	Chile
<i>tigrinoides</i>		c. 64	" "	H	cult
<b>VERONICA</b> * $x = 7, 8, 9, x_1 = 15, 17 x_2 = 26$					
$x = 7$					
<i>filiiformis</i>		14	Lehmann 1944	H	Asia Minor
<i>humifusa</i>		14	Rutland 1941	—	N. & C. Europe
<i>polita</i> ( <i>didyma</i> )		14	Beatus 1936	—	Eur., Sib., Africa
<i>repens</i>	& 4 spp.	14	Hofelich 1935	H	Corsica
<i>arvensis</i>	Field Speedwell	14, 16	Yamashita 1937	—	Eur., Asia, N. Afr.
<i>cardiocalpa</i> ( <i>biloba</i> )		14, 16	Zündorf 1939	—	Himal., Cauc., Sib.
<i>agrestis</i>		14, 28	Yamashita 1937	—	Eur., Asia, N. Afr.
		28	Wulff 1937b		
<i>biloba</i>		28	Zündorf 1939	—	Him., Cauc., Sib.
<i>opaca</i> ( <i>agrestis</i> )		28	Beatus 1936	—	Eur., Asia, N. Afr.
<i>persica</i> ( <i>tournefortii</i> )		28	" "	—	O.W. Temp.
<i>arguteserrata</i> ( <i>biloba</i> )		42	Zündorf 1939	—	Him., Cauc., Sib.
<i>campylophoda</i>		42	" "	—	S.W. Asia
<i>hederifolia</i>		56	Hofelich 1935	—	Eur., S.W. & N. Asia
<i>longifolia</i>		70	S. & S. 1941	H	C.Eur.—N. Asia
$x = 8$					
<i>armena</i>	& 1 sp.	16	Brandt 1953	—	Armenia
<i>dillenii</i> ( <i>verna</i> )		16	Hofelich 1935	—	Eur., S.W. & N. Asia
<i>fruticans</i>		16	Huber 1927	H	Eur., Greenland
<i>fruticulosa</i>		16	Beatus 1936	H	Eur. mtns.
<i>saturejoides</i>		16	Brandt 1952	H	Dalmatia
<i>verna</i>		16	Hofelich 1935	—	Eur., S.W. & N. Asia
<i>prostrata</i>		16, 32	Brandt 1953	H	Eur., N. Asia

# VERONICA (cont.)

<i>chamaedrys</i>	Germander S.	32	L. & L. 1944b	H	Europe
<i>orbiculata</i> ( <i>prostrata</i> )		32	Scheerer 1937	—	"
<i>austriaca</i>		32	Brandt 1952	H	S.E. Europe
<i>gentianoides</i>		32, 48	Scheerer 1937	H	Caucasus
<i>teucrium</i>		48	Lehmann 1944	H	Caucasus
<i>variegata</i>		64	Brandt 1952	H	Eur., N. Asia
		68	Graze 1933	H	<i>cult</i>
		64, 68	Simonet 1934d	H	

$x = 9$

<i>alpina</i>		18	Favarger 1949b	H	Alps, Arctic
<i>anagalloides</i>		18	Schlenker 1936	—	Greece—Persia
<i>aphylla</i>		18	Brandt 1952	H	S. Europe
<i>beccabunga</i>	Brooklime	18	Schlenker 1936	—	N. Temp.
<i>crista-galli</i>		18	Hofelich 1935	—	Caucasus
<i>montana</i>		18	Simonet 1934d	—	Europe
<i>oxycarpa</i> ( <i>anagallis</i> )		18	Schlenker 1936	—	N. Temp.
<i>praecox</i>		18	Hofelich 1935	—	Medit.
<i>scutellata</i>	Marsh S.	18	Hagerup 1944	—	Eur., N. Amer.
<i>stelleri</i>		18	Sakai 1935	—	Aleutians
<i>officinalis</i>	Common Sp.	18, 36	Bøcher 1944	HM	N. Temp.
<i>panormitana</i> ( <i>cymbalaria</i> )		18, 36	Hofelich 1935	—	Medit., Asia M.
<i>americana</i>		36	Schlenker 1936	—	N. America
<i>anagallis-aquatica</i>		36	Ehrenberg 1945	—	N. Temp.
<i>catenata</i>		36	Schlenker 1936	—	Eur., N. Amer.
<i>onoë</i>		36	Yamazaki 1936	—	Japan
<i>wormskjoldii</i>		36	Bøcher & L. 1950	—	N. & Arctic

$x_1 = 15$  (7 + 8)

<i>sibthorpioides</i>		30	Hofelich 1935	—	France
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$x_1 = 17$  (8 + 9)

<i>longifolia</i> ( <i>maritima</i> )		34, 68	Graze 1935	H	Eur., As. M., Sib.
<i>schmidtiana</i>		34	Sakai 1935	—	Sakhalin
<i>barrelieri</i> ( <i>spicata</i> ) & 6 spp.		34	Graze 1933	H	Eur., N. Asia
<i>plebeia</i>		34	Frankel unpub.	—	E. Australia
<i>spicata</i>		34 (35, 36)	Brandt 1953	H	Eur., N. Asia
<i>spuria</i>		34	Graze 1933	H	Europe
<i>virginica</i>	Culvers Root	34	Huber 1927	HM	E: U.S.A.
<i>crassifolia</i>		68	Graze 1933	H	Balkans
<i>incana</i> ( <i>candida</i> )		68	" "	H	S.E. Eur., N. Asia

$x_3 = 26$  (8 + 9 + 9)

<i>peregrina</i>		52	Hofelich 1935	—	Eur., N. Amer.
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## HEBE (VERONICA) \* $x = 20$ , 21

$x = 20$

<i>unplexicaulis</i> & 25 spp.		40	Frankel unpub.	H	New Zealand
<i>diosmaefolia</i>		40	Frankel 1941	H	"
<i>lycopodioides</i>		40	Frankel & H. 1937	H	"
<i>mathewsii</i>		40	Simonet 1934d	H	"
<i>pimeleoides</i>		40	" "	H	"
<i>speciosa</i>		40	" "	H	"
<i>townsoni</i>		40	Frankel 1940	—	"
<i>vernica</i> v. <i>canterburiensis</i>		40	Frankel & H. 1937	H	"
v. <i>gracilis</i>		42	" "	H	"
<i>leiophylla</i>		40, 80	Frankel unpub.	H	"

# HEBE (cont.)

<i>parviflora</i>	{ 40	Simonet 1934d	H	New Zealand
	80	Frankel 1940		
<i>salicifolia</i>	40	Frankel & H. 1937	H	"
<i>v. egmontiana</i>	80	Frankel unp.		
<i>traversii</i>	40, 80, 120	"	H	"
<i>buchanani</i>	80	"	H	"
<i>gigantea</i>	80	"	H	"
<i>macrocarpa</i>	80	"	H	"
<i>pinguifolia</i>	80	Frankel & H. 1937	H	"
<i>subalpina</i>	80, 120	Frankel unp.	—	"
<i>carsei</i> (5x)	100	"	—	"
<i>cockayneana</i>	120	"	—	"
<i>evenosa</i>	120	"	—	"
<i>laevis</i>	120	"	H	"
<i>montata</i>	120	Frankel & H. 1937	—	"
<i>x</i> = 21				
<i>cupressoides</i>	42	Frankel & H. 1937	H	"
<i>epacridea</i>	42	" "	H	"
<i>formosa</i>	42	Frankel unp.	H	S.E. Austr., Tasm
<i>hulkeana</i>	42	Simonet 1934d	H	New Zealand
<i>lavaudiana</i>	42	Frankel unp.	H	"
<i>macrantha</i>	42	Frankel & H. 1937	—	"
<i>raoultii</i>	42	" "	—	"
<i>salicornioides</i>	42	Frankel unp.	H	"
<i>tetrasticha</i>	42	Frankel & H. 1937	—	"
<i>buxifolia</i>	42	Frankel unp.	H	"
<i>v. odora</i>	84	Frankel & H. 1937		
<i>v. prostrata</i>	84	Frankel unp.		
<i>armstrongii</i>	124	"	H	"

## PARAHEBE (VERONICA) *x* = 20, 21

<i>x</i> = 20				
<i>bidwillii</i>	40	Frankel & H. 1937	H	New Zealand
<i>x</i> = 21				
<i>canescens</i>	42	Frankel unp.	H	"
<i>catarractae</i>	42	"	H	"
<i>hookeriana</i>	42	"	H	"
<i>linifolia</i>	42	Frankel & H. 1937	H	"
<i>lyallii</i>	42	" "	H	"

## PYGMAEA *x* = 21

<i>ciliolata</i>	42	Frankel & H. 1937	—	New Zealand
<i>pulvinaris</i>	42	Frankel 1941	—	"
<i>thomsoni</i>	42	" "	—	"

## ANTIRRHINUM \* *x* = 8 (no natural polyploids)

<i>glutinosum</i>	16	Baur 1932	H	Spain
<i>hispanicum</i>	16	" "	H	"
<i>majus</i>	16	Propach 1935	H	Medit.
	(32)	Sparrow <i>et al.</i> 1942		
<i>molle</i>	16	Lawrence 1930	H	Pyrenees
<i>orontium</i>	16	Heitz 1927	H	Europe
<i>sempervirens</i>	16	Baur 1932	H	Pyrenees
<i>siculum</i>	16	" "	H	Sicily
<i>tortuosum</i>	16	" "	H	W. Medit.
& 6 spp.				

**PENSTEMON (PENTSTEMON, CHELONE)\*  $x = 8$**

<i>albertinus</i>	& 9 spp.	16	Keck 1945	H	W: N. America
<i>barrettiae</i>		16	" "	H	Oregon
<i>barbatus</i>		16	Sugiura 1936b	H	Colorado
<i>cinereus</i>		16	Keck 1945	H	Oregon
<i>cyananthus</i>	& 14 spp.	16	Clausen <i>et al.</i> 1940	H	W: U.S.A.
<i>procerus</i>		16, 32	Keck 1945	H	W: N. America
<i>unicola</i>		16, 32	" "	—	"
<i>wilcoxii</i>		16, 32	" "	H	N.W: U.S.A.
<i>nemorosus</i>		30!	Clausen <i>et al.</i> 1940	H	W: U.S.A.
<i>aggregatus</i>		32	" "	—	"
<i>confertus</i>		32	Keck 1945	H	"
<i>globosus</i>		32	" "	—	"
<i>pratensis</i>		32	" "	—	"
<i>rydbergii</i>		32	" "	H	"
<i>shastensis</i>		32	" "	—	"
<i>subseratus</i>		32	" "	—	"
<i>azureus</i>		32, 48	J. Clausen 1933	—	California
<i>frutescens!</i>		40 (5x)	M. & S. 1935	—	Japan, Kamch.
<i>attenuatus</i>		48	Keck 1945	—	W: U.S.A.
<i>euglaucus</i>		48	" "	H	Oregon
<i>flavescens</i>		48	" "	—	W: U.S.A.
<i>cobaea</i>		64	Piotrowska, T. 1937	H	S.E: U.S.A.
<i>neotericus (laetus × azureus)</i>		64	J. Clausen 1933	—	California
<i>laevigatus</i>		96	La Cour 1931	—	S.E.: U.S.A

**GRATIOLA  $x = 8$**

<i>officinalis</i>		32	Scheerer 1939	HM	Europe
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**TORENIA  $x = 8, 9$**

<i>asiatica</i>		16	Simon & L. 1930	H	S. India
<i>baillonii (flava)</i>		16	Sugiura 1936b	H	Indo-China
<i>peduncularis (edentula)</i>		18	Simon & L. 1930	H	India
<i>fournieri</i>	18 (36, 72)		Straub 1939	H	Indo-China

**CALCEOLARIA  $x = 8, 9, 30$**

<i>angustifolia</i>		18	Srinath 1940	H	Chile
<i>banksii</i>		18	" "	H	<i>cult</i>
<i>cana</i>		18	La Cour 1945*	—	Chile
<i>clibranii</i>		18	Srinath 1940	H	<i>cult</i>
<i>crenatiflora</i>		18	La Cour 1945*	H	Chiloe Is.
<i>dentata</i>		18	"	H	Chile
<i>integrifolia</i>		18	"	H	"
<i>pratensis</i>		18	"	H	"
<i>alba</i>		36	"	H	"
<i>pol,rrhiza</i>		36	"	H	Patagonia
<i>hyssopifolia</i>		32	"	H	Ecuador
<i>mexicana</i>		60	Srinath 1940	H	Mexico

**ANARRHINUM (LINARIA)  $x = 9$**

<i>bellidifolium</i>		18	Heitz 1927	—	Medit.
<i>laxiflorum</i>		18	" "	—	Spain

**ASARINA (ANTIRRHINUM)  $x = 9$**

<i>procumbens</i>		18	Heitz 1927	—	Italy
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<b>DIASCIA</b> $x = 9$					
<i>barbarea</i>		18	Propach 1934	H	S. Africa
<b>NEMESIA</b> * $x = 9$					
<i>strumosa</i>	& 7 spp.	18	Heitz 1927	H	S. Africa
<i>versicolor</i>		18	Propach 1934	H	"
<i>pulchella</i>	& 7 spp.	18	La Cour 1945*	H	"
<b>KICKXIA (LINARIA, ELATINOIDES)</b> $x = 7?, 9$					
<i>elatine</i>		{ 18	Brunn 1932b	H	Eur., Asia
		{ 36	Wulff 1939a		
<i>spuria</i>	& 1 sp.	c. 14	Heitz 1927	—	Eur., N. Africa
<b>SCROPHULARIA</b> $x = 9, 10, 13$					
<i>canina</i>		26	Rodrigues 1953	—	C. Eur., Medit.
<i>nodosa</i>	Figwort	36	Scheerer 1939	M	N. Temp.
<i>vernalis</i>		40	Håkansson 1926	—	C. & S. Eur. mtns.
<i>aquatica</i>	Water Betony	80	Maude 1940	M	W. Eur., N. Afr.
<i>umbrosa</i>		c. 52	Scheerer 1940	—	C. Eur., W. Asia
<b>ANGELONIA</b> $x = 10$					
<i>grandiflora</i> ( <i>salicariaefolia</i> )		20	Raghavan & S. '40b	H	Brazil
<i>cubensis</i>		20	" "	H	Cuba
<b>DIPLACUS</b> $x = 10$					
<i>aridus</i>		20	McMinn 1951	H	S. California
<i>calycinus</i>		20	" "	—	California
<i>clevelandii</i>		20	" "	—	"
<i>fascicularis</i>		20	" "	—	"
<i>puniceus</i>		20	" "	H	S. California
<b>LIMOSELLA</b> $x = 10$					
<i>subulata</i>		20	Vachell & B. 1939	—	E: N. Amer., Wales
<i>aquatica</i>	Mudwort	40	" "	—	N. Temp.
( <i>sub. × aqu.</i> )		30	" "	—	Glamorgan
<b>RUSSELIA</b> $x = 10$					
<i>juncea</i>		20	Raghavan & S. '40b	H	Mexico
<i>rotundifolia</i>		20	" "	H	"
<b>SCOPARIA</b> $x = 10$					
<i>dulcis</i>		40	Raghavan & S. '40b		Tropics
<b>PAULOWNIA</b> $x = 10$					
<i>tomentosa</i> ( <i>imperialis</i> )		40	Westfall 1949	H	China, Japan
<b>TETRANEMA</b> $x = 10$					
<i>mexicana</i>	Mex. Foxglove	20	Sugiura 1940	H	Mexico
<b>MAURANDIA (ANTIRRHINUM)</b> $x = 10?, 12$					
<i>scandens</i> ( <i>lophospermum</i> )		{ 20	Sugiura 1937a	H	Mexico
		{ 24	Heitz 1927		
<i>antirrhiniflora</i>		24	" "	H	S.W: U.S.A.
<i>barclaiana</i>		24	" "	H	Mexico
<i>erubescens</i>		24	" "	H	"
<i>purpusii</i>		24	" "	H	"
<i>purpurea</i>		24	Sugiura 1937a	—	"

<b>LAGOTIS</b> $x = 11$						
<i>glauca</i>		22	Sakai 1934	H		Asia, N. Amer.
<i>takedana</i>		22	"	—		Japan
<b>SYNTHRIS</b> $x = 12$						
<i>reniformis</i>		24	MacMillan 1949	H		W: N. America
<b>ILYSANTHES</b> $x = 13$						
<i>parviflora</i>		26	Raghavan & S. 1941	—		India, Trop. Afr.
<b>VERBASCUM</b> $x = 15, 16, 18$						
<i>nigrum</i>	Dark Mullein	30	Håkansson 1926	HM		Eur., Caucasus
<i>blattaria</i>	Moth M.	30, 32	" "	H		Eur., W. & C. Asia, N. Africa
<i>chaixii</i>	Nettle-leaved M.	32	" "	H		S. & C. Europe
<i>lychnitis</i>	White M.	32	" "	H		Eur., W. Asia
<i>phlomoïdes</i>	Woolly M.	32	" "	H		S. & C. Eur., W. Asia
<i>pulverulentum</i>	Hoary M.	32	" "	H		Europe
<i>simplex</i>		32	Fernandes 1950b	H		S.W. Eur., N. Afr.
<i>thapsiforme</i>		32	Håkansson 1926	HM		Eur., N. Africa
<i>virgatum</i>		32	" "	H		Eur., A. Min., N. Africa
<i>phoeniceum</i>	Purple M.	{ 32 36	M. & S. 1935 Lawrence 1931	H		E. Eur., W. Asia
<i>thapsus</i>	Aaron's Rod	34, 36	Håkansson 1926	H		Eur.—Himal.
<i>ternacha</i>		48	" "	—		Abyssinia
<i>maurum</i>		64	" "	—		Morocco
<b>CELSIA</b> $x = 17, 20, 23, 24, 25, 26$						
<i>bugulifolia</i>		34	Håkansson 1926	H		S.E. Europe
<i>pontica</i>		34	" "	H		Armenia
<i>horizontalis</i>		40	" "	—		Crete
<i>roripifolia</i>	c. 42	" "	" "	—		Thrace
<i>battandieri</i>	c. 46	" "	" "	—		Morocco, Alg.
<i>brevipedicellata</i>		46	" "	—		E. Trop. Africa
<i>faurei</i>		46	" "	—		Algeria
<i>keniensis</i>		46	" "	—		Abyss., Kenya
<i>arcturus</i>		48	" "	H		Crete
<i>orientalis</i>		48	" "	H		Levant
<i>rupestris</i>		48	" "	—		Thrace
<i>maroccana</i>		50	" "	—		Morocco
<i>cretica</i>		52	" "	H		Medit.
<i>lyrata</i>		52	" "	—		"

## (2) PARASITIC GROUP

<b>RHINANTHUS (ALECTOROLOPHUS)*</b> $x = 7$						
<i>minor</i> & 5 spp.	Penny Grass	14	Witsch 1932	Par		Europe
<i>major</i>	Yellow Rattle	14 + 8B	Wulff 1939a	Par		"
( <i>serotinus</i> )						
<b>PEDICULARIS*</b> $x = 6, 8$						
<i>verticillata</i>		12	Favarger 1953	Par		Arctic, Alps
<i>amoena</i>	& 2 spp.	16	S. & S. 1938	Par		Altai
<i>foliosa</i>	& 2 spp.	16	Witsch 1932	Par		Europe
<i>sylvatica</i>	Lousewort	16	L. & L. 1944b	Par		"
<i>flammea</i>	& 3 spp.	16	L. & L. 1948	Par		"

# **PEDICULARIS (cont.)**

*palustris* 16 Reese 1953 Par Europe

# **MELAMPYRUM \* $x = 9$**

*nemorosum* 18 Reese 1952a Par Eur., Caucasus  
*pratense* & 2 spp. Cow Wheat 18 Witsch 1932 Par Eur., N. Asia

# **SOPUBIA $x = 9$**

*delphinifolia* 36 K. Iyengar 1937 Par India

# **ODONTITES $x = 10$**

*lutea* 20 Witsch 1932 Par Eur., Asia M.  
*verna (rubra)* { 20 Fagerlind 1937 Par  
40 Witsch 1932 Par Europe

# **TOZZIA $x = 10$**

*alpina* 20 Witsch 1932 Par Europe

# **STRIGA $x = 10$**

*densiflora* 40 Kumar & A. 1941 Par India  
*euphrasioides* 40 " " Par  
*lutea* 40 " " Par Trop. Asia & Afr  
*orobanchoides* 40 " " Par India, Trop. Afr.

# **EUPHRASIA \* $x = 11$**

*montana* 22 Witsch 1932 Par W. Europe  
*rostkoviana* Eyebright 22 " " MPar Europe  
*anglica* 22 Yeo 1954 Par Britain  
*hirtella* 22 " " Par Eurasia  
*rivularis* 22 " " Par Britain  
  
*frigida* 44 L. & L. 1948 Par Arctic, Subarctic  
*minima* 44 Witsch 1932 Par C. & S. Europe  
*salisburgensis* 44 " " Par Europe  
*curta* & 7 spp. 44 Yeo 1954 Par Eur., Quebec  
*brevipila* 44, 45 " " Par N. & Alp. Eur.  
N.E.: N. Amer  
*confusa* Eyebright 44 " " Par Britain  
*stricta* 44 Reese 1952a Par Europe

# **BARTSIA (BARTSCHIA) $x = 12, 14$**

*alpina* { 24 Favarger 1953 Par  
36 Doulat 1946 Par Eur., N. Amer.  
28 Bøcher & L. 1950

# **CASTILLEJA $x_1 = 11 + 12$**

*arctica* 46 S. & S. 1941 Par Arctic

## **253 OROBANCHACEAE**

# **OROBANCHE $x = (6) 12, 18, 19, 20$**

*ramosa* 24 Gardé 1952a Par Eur., Cauc., W  
Asia  
*uniflora* 36, 72 Jensen 1951 Par E: N. America  
*aegyptica* 38 Srivastava 1939 Par Egypt  
*crenata* 38 Gardé 1952a Par Arabia

# **OROBANCHE (cont.)**

<i>lucorum</i>		38	Palmgren 1943	Par	C. Europe
<i>minor</i>	Broomrape	38	Carter 1928	Par	Eur., N. Africa
<i>reticulata</i>		38	Favarger 1953	Par	C. & S. Europe
<i>coerulescens</i>		38, 40	Sugiura 1936b	Par	Eur., N. Asia
<i>ammophila</i>		40	" "	Par	" "

# **PHACELLANTHUS $x = 19$**

<i>tubiflorus</i>		38, 57, 76	Matsuura & T. 1937	Par	Japan
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# **CISTANCHE $x = 20$**

<i>phellipaea</i>		40	Gardé 1952a	Par	Medit.
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# **LATHRAEA $x = ?$**

<i>squamaria</i>	Toothwort	36, 42	T. 1930, 1935	Par	Eur., N. Asia
<i>clandestina</i>		42	Dangeard 1937	Par	S. Europe

## **254 LENTIBULARIACEAE**

### **PINGUICULA $x = 16$**

<i>alpina</i>		{ 32	L. & L. 1944b	C	Europe
		{ 32	Doulat 1947		
<i>grandiflora</i>		32	" "	C	W. Europe
<i>vulgaris</i>	Butterwort	64	" "	HC	Eur., N. Asia, N. America

### **UTRICULARIA $x = ?$**

<i>minor</i>		36-40	Reese 1952a	C	Eur., N. Asia, N. America
<i>neglecta</i>		36-40	"	C	Europe
<i>ochroleuca</i>		c. 40	"	C	"
<i>vulgaris</i>	Bladderwort	36-40	"	CH	Eur., N. Asia, & America

## **256 GESNERIACEAE**

### **NAEGELIA (GESNERIA) $x = 12$**

<i>zebrina</i>		24	Sugiura 1936b		Brazil
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### **CORYTHOLOMA (GESNERIA) $x = 14$**

<i>cardinalis</i>		28	Sugiura 1936b	H	Trop. America
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### **SAINTPAULIA $x = 14$**

<i>ionantha</i>	African Violet	28	Sugiura 1936b	H	Trop. Africa
<i>kewensis</i>	" "	28	Holzer 1952	H	"

### **SINNINGA (GLOXINIA) $x = 14$**

<i>speciosa</i>	Gloxinia	56	Sugiura 1936b	H	Brazil
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### **STREPTOCARPUS \* $x = 15, 16$**

#### (i) $x = 15$ : Stemmed Group

<i>caulescens</i>		30	Lawrence <i>et al.</i> 1939	—	Trop. E. Africa
<i>holstii</i>		30	" "	—	
<i>kirkii</i>		30	" "	—	
<i>orientalis</i>		30	" "	—	Siam
<i>saxorum</i>		30	" "	—	Trop. E. Africa

# STREPTOCARPUS (cont.)

(ii)  $x = 16$ : Stemless Group

<i>insignis</i>	32	Lawrence 1945 <sup>b</sup>	—	E. Cape Prov
<i>polackii</i>	32	" "	—	Transvaal
<i>dunnii</i>	32	Lawrence <i>et al.</i> 1939	H	"
<i>rexii</i> & 15 spp.	32	" "	H	Cape Prov.
<i>saundersii</i>	32	Sugiura 1940	—	Natal
<i>kewensis</i> $\times$ <i>grandis</i>	32, 64	Lawrence 1945 <sup>a</sup>	H	<i>cult</i>
<i>veitchii</i>	32	Sugiura 1940	H	<i>cult</i>

# CHIRITA (DIDYMOCARPUS)

$x = 18$

<i>lavandulacea</i>	36	Sugiura 1940	H	Malaya
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# DIDYMOCARPUS $x = 18?$

<i>tomentosa</i>	54	Thathachar 1942	—	India
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# RAMONDA $x = 18$

<i>nathaliae</i>	36	Glišić, T. 1927	H	Balkans
<i>serbica</i>	72	" "	H	"

## 257 BIGNONIACEAE

# INCARVILLEA $x = 11$

<i>compacta</i>	18?	Sugiura 1936b	H	China
	22	Bowden 1940a		
<i>delavayi</i>	18?	Sugiura 1936b	H	W. China, Tibet
	22	Bowden 1940a		
<i>grandiflora</i>	22	" "	H	W. China
<i>olgae</i>	22	" "	H	Turkestan

# SPATHODEA $x = 13$

<i>campanulata</i> Scarlet Bell	26	Raghavan & V. '40c	MHSh	Trop. Africa
<i>nilotica</i>	26	Venkatasubban 1945a	H	"

# ARGYLIA $x = 15$

<i>uspallatensis</i>	30	Covas & S. 1946	—	Chile
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# MILLINGTONIA $x = 15$

<i>hortensis</i> Indian Cork T.	30	Narasinga Rao 1936	HW	Burma
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# OROXYLUM $x = 15$

<i>indicum</i>	30	Venkatasubban 1944	DM	India
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# TECOMARIA (TECOMA) $x = 17$

<i>capensis</i>	34	Venkatasubban 1944	H	S. Africa
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# JACARANDA $x = 18$

<i>coerulea</i>	36	Simmonds 1954	H	W. Indies
<i>ovalifolia</i> Jacaranda	36	Venkatasubban 1944	HSh	Brazil
<i>as mimosaeifolia</i>	66	Pathak <i>et al.</i> 1949		

# TECOMA $x = 18?, 19?$

<i>smithii</i> Austr. Trumpet Bush	36	Venkatasubban 1944	H	<i>cult</i>
<i>chrysantha</i>	38	" "	H	Venezuela

<b>CAMPSIS (TECOMA) <math>x = 18?, 19?, 20</math></b>						
<i>chinensis</i> ( <i>grandiflora</i> )	{ 36, 38	Venkatasubban 1944				
	40	Sax 1933b,	H		China, Japan	
	40	Bowden 1945a				
<i>radicans</i> Trumpet Vine	{ 40	Sax 1933b	H		E: U.S.A.	
<i>tagliabuana</i> ( <i>grand. × rad.</i> )	40	Venkatasubban 1944				
	40	Vilmorin & S. '27a	H		<i>cult</i>	
<b>PANDOREA (TECOMA) <math>x = 19</math></b>						
<i>jasminoides</i>	38	Nakajima 1936	H		Australia	
<b>PSEUDOCALYMMMA <math>x = 19</math></b>						
<i>macrocarpum</i>	38	Simmonds 1954			Cent. Amer.	
<b>ADENOCALYMMMA <math>x = 20</math></b>						
<i>calycina</i>	40	Venkatasubban 1944			Brazil	
<b>ANEMOPAEGMA (BIGNONIA) <math>x = 20</math></b>						
<i>chamberlaynii</i>	40	Venkatasubban 1944	H		Brazil	
<b>ARRABIDAEA (BIGNONIA) <math>x = 20</math></b>						
<i>magnifica</i>	40	Venkatasubban 1944	H		Colombia	
<b>BIGNONIA <math>x = 20</math></b>						
<i>capreolata</i> Cross Vine	40	Bowden 1940a	H		S.E: U.S.A.	
<i>megapotamica</i>	40	Venkatasubban 1944	—		Brazil	
<i>unguis-cati</i> Cats' Claw	{ 40, 80	" '45a	H		W. Indies—Arg.	
( <i>tweediana</i> )	80	Bowden 1945a				
<b>CALLICHLAMYS <math>x = 20</math></b>						
<i>latifolia</i>	40	Simmonds 1954			Brazil, Peru	
<b>CATALPA <math>x = 20</math></b>						
<i>bignonioides</i> Indian Bean	40	E. C. Smith 1941	HShW		S.E: U.S.A.	
<i>ovata</i>	40	" "	H		China	
<i>speciosa</i>	40	" "	HW		C: U.S.A.	
<i>hybrida</i>	40	" "	H		<i>cult</i>	
<b>CHILOPSIS <math>x = 20</math></b>						
<i>linearis</i> Desert Willow	40	Bowden 1945a	H		S: U.S.A., Mex.	
<b>CLYTOSTOMA (BIGNONIA) <math>x = 20</math></b>						
<i>binatum</i> ( <i>purpureum</i> )	40	Venkatasubban 1944	H		Uruguay	
<b>CRESCENTIA <math>x = 20</math></b>						
<i>cujete</i> Calabash Tree	40	Simmonds 1954	HTo		Trop. America	
<i>latifolia</i>	40	" "			" "	
<b>CYDISTA (BIGNONIA) <math>x = 20</math></b>						
<i>diversifolia</i>	40	Venkatasubban 1944	H		Mexico	
<b>DOLICHANDRONE <math>x = 20</math></b>						
<i>rheedii</i>	40	Venkatasubban 1944	—		India, Malaya	
<i>stipulata</i>	40	" "	—		Burma	
<b>HETEROPHRAGMA <math>x = 20</math></b>						
<i>adenophyllum</i>	40	Venkatasubban 1945a	—		India	

<b>KIGELIA</b> $x = 20$					
<i>pinnata</i>	Sausage Tree	40	Simmonds 1954	MSh	Trop. Africa
<b>MARKHAMIA</b> $x = 20$					
<i>hildebrandtia</i>		40	Venkatasubban '45a	H	Trop. Africa
<i>platycalyx</i>		40	" "	H	Uganda
<b>PAJANELIA</b> $x = 20$					
<i>multijuga (rheedii)</i>		40	Venkatasubban 1944	—	India, Burma
<b>PARAGONIA (BIGNONIA)</b> $x = 20$					
<i>pyramidata</i>		40	Simmonds 1954	—	Brazil
<b>PARMENTIERA</b> $x = 20$					
<i>cereifera</i>	Candle Tree	40	Simmonds 1954	H	Panama
<i>edulis</i>	Guajilote	40	Venkatasubban '45a	F	Mex., Guat.
<b>PHAEDRANTHUS (BIGNONIA)</b> $x = 20$					
<i>cherere</i>		40	Venkatasubban 1944	H	Mexico
<b>PHYLLARTHON</b> $x = 20$					
<i>comorensis</i>		40	Venkatasubban 1944		Madagascar
<b>PHRYGANOCYDIA</b> $x = 20$					
<i>corymbosa</i>		40	Simmonds 1954	—	E: S. America
<b>STENOLOBIUM (BIGNONIA)</b> $x = 20$					
<i>stans</i>	Yellow Bells	40	Bowden 1945a	H	W. Indies—Peru
<b>STEREOSPERMUM</b> $x = 20$					
<i>chelonoides</i>		40	Venkatasubban 1944	W	India, Burma
<i>suaveolens</i>		40	" "	HW	India
<i>xylocarpum</i>		40	" "	W	
<b>TABEBUIA (TECOMA)</b> $x = 20$					
<i>guyacan</i>		40	Venkatasubban 1944		Panama
<i>ipe</i>	Lapacho	40	Covas & S. 1947	W	Paraguay
<i>nodosa</i>		40	" "	—	Argentina
<i>pallida</i>	White Cedar	40	Simmonds 1954	HW	W.I., C. Amer.
<i>rosea</i>		40	Venkatasubban 1944	H	Mex.—Ecuador
<i>serratifolia</i>	Yellow Poui	{ 38?	" '45a	HW	W. Indies
<i>spectabilis</i>		40	Simmonds 1954		
		40	Venkatasubban '45a	H	Colombia
<b>TANAECIUM</b> $x = 20$					
<i>jaroba (albiflorum)</i>		40	Venkatasubban 1944		Trop. America
<b>AMPHILOPHIUM</b> $x = 22$					
<i>mutisii</i>		44	Venkatasubban 1944		W. Indies

## 258 PEDALIACEAE

<b>PEDALIUM</b> $x = 8$					
<i>murex</i>	Burra Gokeru	16	Srinivasan 1942	M	India, Trop. Afr.

<b>SESAMUM</b>	$x = 8, 13.$	$x_2 = 8 + 8 + 13 = 29$			
<i>alatum</i>		26	Kedarnath 1950		S. Africa
<i>capense</i>		26	Shimamura 1951		"
<i>orientale (indicum)</i>	Sesame	26	Raghavan & K. 1947	OMV	India, <i>cult</i>
		(52)	Richharia & P. 1940		
<i>laciniatum</i>		{ 28	Raghavan & K. 1945	—	India
		{ 32	Ramanujam & J. 1948		
<i>angolense</i>		32	Kedarnath 1950		Trop. Africa
<i>prostratum</i>		32	Raghavan & K. 1947		India
<i>occidentale</i>		64	Sampath & R. 1949	—	
<i>radiatum</i>	Black Beniseed	64	John & R. 1941	OV	Trop. Africa
<i>indicatum (orient. × prost.)</i>	29	(58)	Raghavan & K. 1947	O	<i>expt.</i>
<b>CERATOTHECA</b>	$x = 8$				
<i>sesamoides</i>		32	Kedarnath 1950	OV	Trop. Africa
<b>PROBOSCIDEA (MARTYNIA)</b>	$x = 15$				
<i>jussieui</i>	Unicorn Plant	30	Sugiura 1936b	HV	S: U.S.A.
as <i>M. louisiana</i>		30	Martini 1939		
as <i>M. fragrans</i>		30	Gaiser <i>et al.</i> 1943		
<b>IBICELLA (PROBOSCIDEA)</b>	$x = ?$				
<i>lutea</i>		{ 30	Martini 1939		
		{ 32	Covas & S. 1947	HV	Argentina
<b>MARTYNIA</b>	$x = 18$				
<i>annua (diandra)</i>		36	Srinivasan 1942	V	Trop. Amer.

## 259 ACANTHACEAE

<b>THUNBERGIA</b>	$x = 7, 8, 9$				
<i>alata</i>	Black-eyed Susan	{ 18	Grant 1955		
		{ 32	Snoad 1952	H	Tr. Afr., E. Ind.
<i>grandiflora</i>		{ c. 28	E.K.J.*		
		{ 56	Snoad 1952	H	India, Burma
<i>laurifolia</i>		56	Sugiura 1936b	H	Malaya
<b>HYGROPHILA</b>	$x = 12, 16$				
<i>spinosa</i>	Nirmulli, Water Jasmine	{ 24	Sugiura 1940		
		{ 32	Rangaswamy 1941	(M)	E. Ind., Malaya
<b>JUSTICIA</b>	$x = 14$				
<i>debilis</i>		28	Sugiura 1936a	H	Arabia
<i>furcata</i>		28	" "	H	Mexico
<b>JACOBINIA*</b>	$x = 14$				
<i>carnea</i> & 2 spp.		28	Grant 1955	H	Brazil
<b>RUELLIA*</b>	$x = 16, 17, 18$				
<i>tuberosa</i>	Menow-weed	{ 32	Sugiura 1936b	H(R)	Trop. N. Amer
		{ 34	Bowden 1940a		Jamaica
<i>ciliosa</i>		34	" "	H	E: U.S.A.
<i>malacosperma</i>		34	" "	H	C. America
<i>nudiflora</i>		34	" "	H	S: U.S.A., Mex.
<i>strepens</i>		34	" "	H	E: U.S.A.
<i>graecizana</i> & 18 spp.		34	Grant 1955	H	S. America

<b>RUELLIA (cont.)</b>				
<i>ciliata</i>	36	Sugiura 1936b	—	India, Burma
<i>squarrosa (dipteracanthus)</i>	34	Grant 1955	—	Mexico
<b>ADHATODA (JUSTICIA) <math>x = ?</math></b>				
<i>vasica</i>	{	34 Mukherjee 1952b	HDIM	India, Malaya
		56 Grant 1955		
<b>DICLIPTERA <math>x = 20</math></b>				
<i>resupinata</i>	40	Sugiura 1939	—	Mexico
<b>ERANTHEMUM (DAEDALACANTHUS) <math>x = 21</math></b>				
<i>pulchellum (nervosus)</i>	42	Pathak <i>et al.</i> 1949	H	India
<i>variegatum</i>	42	„ „	H	<i>cult</i>
<b>ACANTHUS <math>x = ?</math></b>				
<i>mollis (lusitanicus)</i>	56	Sugiura 1936b	H	S. Europe
	{	56 „ 1939	H	„
<i>spinus</i>		80 Drahowzal 1936		
		112 Sugiura 1937b		
<b>ELYTRARIA <math>x = ?</math></b>				
<i>virgata</i>	50	Grant 1955	H	S.E. U.S.A.
<b>SANCHESIA <math>x = ?</math></b>				
<i>nobilis</i>	136	Singh 1951	H	Ecuador

## 260 GLOBULARIACEAE

<b>GLOBULARIA <math>x = 8, 10</math></b>				
<i>vulgaris</i>	16	L. & L. 1944b	H	S. Eur., Cauc
<i>cordifolia</i> Globe Daisy	20	Sugiura 1937a	H	S. Europe

## 262 SELAGINACEAE

<b>HEBENSTRETTIA <math>x = 7</math></b>				
<i>comosa</i>	14	Sugiura 1936b	H	S. Africa
<i>dentata</i>	14	„ „	—	

## 263 VERBENACEAE

<b>DIOSTEA <math>x = 5</math></b>				
<i>scoparia</i>	20	Covas & S. 1946		Chile, Arg.
<b>JUNELLIA <math>x = 5</math></b>				
<i>asparagoides</i>	20	Covas & S. 1946	—	Chile, Arg.
<i>glauca</i>	20	„ 1947		
<i>seriphoides</i>	20	Schnack & C. 1947		
<i>aspera</i>	60	Covas & S. 1946		Chile, Arg., Peru
<b>VERBENA (incl. GLANDULARIA)* <math>x = 5, 7</math></b>				
<i>dissecta</i>	10	Schnack 1944		S. America
<i>flava</i>	10	Schnack & C. 1944		Argentina

**VERBENA (cont.)**

<i>grandiflora</i>		10	Dermen 1936a	—	Cuba
<i>laciniata (erinoides)</i>		10	Schnack & C. 1944	—	S. America
<i>megapotamica</i>		10	Schnack & G. 1945	—	Brazil—Arg.
<i>mendocina</i>		10	Schnack & C. 1945b	—	Argentine
<i>parodii</i>		10	Covas & S. 1944	—	"
<i>perakii</i>		10	" "	H	"
<i>peruviana</i>		10 (20)	Schnack & C. 1945a	H	S. Braz., Peru, Ur.
<i>phlogiflora</i>		10	Schnack 1944	—	S. America
<i>platensis (teucroides)</i>		10	Noack 1937	—	"
<i>radicans</i>		10	Beale 1940	—	Chile, Arg.
<i>santiaguensis</i>		10	Schnack & G. 1945	—	Arg., Uruguay
<i>hybrida</i>	Garden V.	{ 10	Beale 1940	H	cult
		20 (40)	Furusato 1940		
<i>crithmifolia</i>		20	Covas & S. 1945	—	Ecuador, Arg.
<i>hookeriana</i>		20	" "	—	Argentine
<i>ambrosifolia</i>		30	Dermen 1936a	—	N. America
<i>canadensis</i>	Clump V.	30	" "	—	N. & S. Amer.
<i>racemosa</i>		30	" "	—	N. America
<i>tenera</i>	Italian V.	30	Beale 1940	H	S. Braz.—Arg.
<b>x = 7</b>					
<i>officinalis</i>	Vervain & 10 spp.	14	Dermen 1936a	H	Temp.
<i>bonariensis</i>		28	" "	H	N. & S. Amer.
<i>intermedia</i>		28	Schnack & C. 1944	—	Brazil—Arg.
<i>littoralis</i>		28	Derman 1936a	—	Temp. & Tr. Am
<i>gracilescens</i>		42	Schnack 1944	—	Bolivia—Arg.
<i>montevideensis</i>		42	Schnack & C. 1947	—	Uruguay
<i>rigida (venosa)</i>		42	Dermen 1936a	H	N. & S. Amer.
<i>corymbosa</i>		56	Noack 1937	H	S. America
sp. aff. <i>intermedia</i>		56	Schnack & C. 1947	—	Chile
<i>ovata</i> ( $x_2 = 5 + 7 ?$ )		72	Noack 1937	—	Brazil, Arg.
<b>PRIVA x = 6</b>					
<i>lappulacea</i>		12	Patermann, T. 1938	—	Trop. America
<b>VITEX x = 6, 8</b>					
<i>agnus-castus</i>	Chaste Tree	24	Patermann, T. 1938	H	Temp. & Sub.-Tr
<i>trifolia</i>		32	Sugiura 1936a	M	Trop. Asia, Austr. E. Africa
<b>PHRYMA x = 7</b>					
<i>leptostachya</i>		{ 14	Sugiura 1936b	—	N. Asia, Himal.,
		28	D. C. Cooper 1941		N America
<b>NEOSPARTON x = 8</b>					
<i>ephedroides</i>		32	Covas 1950c	—	Chile, Arg.
<b>CALLICARPA x = 8?, 9?</b>					
<i>japonica</i>		{ 16	Sugiura 1936b	H	E. Asia
		18	Patermann, T. 1938		
<b>LIPPIA x = 8?, 9?</b>					
<i>juncea (baillonia)</i>		32	Junell 1934	—	Chile
<i>citriodora</i>	Lemon Verbena	36	Doulat, D. 1951	H	Chile, Arg.
<i>nodiflora</i>		36	Junell 1934	HM	O.W. Tropics

LANTANA  $x = 8, 11$

<i>camara</i>	{ 32 Schnack & C. 1947	FHM	Tropics
	44 Tjio 1948, Singh 1951		
<i>polyacantha</i>	44 "	—	"
<i>trifolia</i>	48 Patermann, T. 1938	H	Tr. Amer. & Asia

ACANTHOLIPPIA  $x = 9$

<i>seriphioides</i>	36 Covas & S. 1947	—	Argentine
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ALOYSIA  $x = 9$

<i>ligustrina</i>	36 Covas & S. 1946	H	Texas—Arg.
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PHYLA  $x = 9$

<i>nodiflora</i>	36 Covas & S. 1946	—	Trop. & Sub-Tr.
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CASTELIA  $x = 11$

<i>cuneato-ovata</i>	44 Covas & S. 1946	—	S. America
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CLERODENDRON  $x = 12, 23?$

<i>fargesii</i>	24 Patermann, T. 1938	H	China
<i>speciosissimum</i>	48 Bowden 1945b	H	Tropics
<i>thomsoniae</i>	{ 46 Nishiyama & K. '42	H	"
	c. 48 Bowden 1945b		
<i>trichotomum</i>	c. 46, c. 92 Bowden 1940a	H	China, Jap., Phil.
<i>kaempferi</i>	60 Bowden 1945b	—	E. Trop. Asia
<i>bungei</i>	108 " "	H	Tr. Amer., China

DURANTA  $x = 12?$

<i>repens</i> Pigeon Berry	36 Patermann, T. 1938	H	Tropics
<i>(plumieri)</i>			

STACHYTARPHETA  $x = ?$

<i>cayennensis</i>	48 Patermann, T. 1938	—	Tr. Amer., Afr.
<i>angustifolia</i>	56 Junell 1934	—	" "
<i>dichotoma</i> c. 112	" "	H	Trop. America

## 264 LABIATAE

DRACOCEPHALUM  $x = 5, 7$

<i>imberbe</i>	10 S. & S. 1938	H	Altai
<i>moldavica</i>	20 Panutina-M. 1933	H	Sib., Himal.
<i>altaense</i>	14 S. & S. 1938	H	Altai
<i>ruyschiana</i>	14 L. & L. 1944b	H	Eur., Siberia

STACHYS (BETONICA)  $x = 5, 8$

<i>arvensis</i> Woundwort	10 Lang 1940	M	Eur., N. Africa
<i>officinalis</i> Betony	16 " "	M	Eur., Asia Min.
<i>grandiflora</i>	32 Lewitzky 1940	—	Asia M., Persia
<i>sylvatica</i> Clownwort	{ 48 L. & L. 1942	M	Himal., N. Asia
	66 Lang 1940		
<i>palustris</i> Marsh Betony	{ c. 64 Wulff 1938	M	N. Temp.
	102 Lang 1940		

TEUCRIUM  $x = 5, 8, 13$

<i>botrys</i>	10 Junell 1934	—	Eur., Algeria
<i>arduinii</i>	32 "	—	S. Europe

# TEUCRIUM (cont.)

<i>flavum</i>		32	Junell 1934	—	Medit.
<i>scorodonia</i>	Wood Sage	32	Scheerer 1940	H	W. Europe
		34	Rutland 1941		
<i>chamaedrys</i>		64	Reese 1952a	H	Eur., S.W. Asia, Morocco
<i>polium</i>		26	Lorenzo-A. & G. '50	—	Medit., S.W. Asia
SATUREIA $x = 5?$					
<i>montana</i>	Winter Savory	30	Vaarama 1947a	HSp	S. Eur., Cauc.
<i>hortensis</i>	Summer Savory	45	" "	HSp	Medit., S.W. Asia
		48	Mechelke 1954		
HORMINUM $x = 6$					
<i>pyrenaicum</i>		12	Favarger 1953	—	S. Eur. mtns.
HYSSOPUS $x = 6$					
<i>officinalis</i>	Hyssop	12	Reese 1952a	DSp	Eurasia
PLECTRANTHUS $x = 6$					
<i>japonicus</i>		24	Suzuka 1950	M	O.W. Tropics
ROSMARINUS $x = 6$					
<i>officinalis</i>	Rosemary	24	Scheel 1931	Sp	Medit.
COLEUS $x = 6, 7, 8$					
<i>blumei</i>		24	Furusato 1940	H	Java, <i>cult</i>
garden forms		48, 49, 72	Reddy 1952		
<i>laciniatus</i>		48	" "	—	"
<i>forskohlii</i>		28	" "	—	India
<i>aromaticus (amboinicus)</i>		32	Scheel 1931	M	"
<i>rehneltianus</i>		c. 48	" "	—	Ceylon
PHLOMIS $x = 6, 10, 11$					
<i>lychnitis</i>	Lampwick Pl.	20	Wagner 1948	H	S. Europe
<i>purpurea</i>		20	" "	—	Spain, Portugal
<i>tuberosa</i>		22	Reese 1953	—	S. Eur., E. & N. Asia
<i>alpina</i>		24	S. & S. 1938	H	Siberia
THYMUS $x = 6, 7, 9$					
<i>serpyllum</i>	Mother of T.	24	Pigott 1954	Sp	Eur., Asia, N. Afr.
<i>alpestris</i>		28	Jalas 1948	—	C. Europe
<i>comosus</i>		28	" "	H	S.E. Europe
<i>marschallianus</i>		28	" "	H	S.E. Eur., Cauc.
<i>pulegioides</i>		28	Pigott 1954	H	Europe
<i>zhuguliensis</i>		28	Jalas 1948	—	C. Asia
<i>caespitius</i>		30	" "	H	Pyrenees
<i>vulgaris</i>	Common Thyme	30	Vaarama 1947a	HMSp	S. Eur., N. Asia
<i>citriodorus</i>		42	" "	H	<i>cult</i>
<i>drucei</i>	Mother of Thyme	54	Jalas 1948,	Sp	N. & Arctic
( <i>serpyllum, arcticus</i> )		50-56	Pigott 1954		
<i>hirsutus (doerfleri)</i>		54	Vaarama 1947a	—	Balkans
<i>pallasianus (odoratissimus)</i>		54	" "	H	S. Russia
<i>longidens (lanicaulis)</i>		58	" "	H	Balkans

**MONARDA**  $x = 6, 8, 9$

<i>punctata</i>	Am. Horse Mint	24	Bushnell 1936	M	N. America
<i>didyma</i>	Bee Balm	32	" "	H	E: N. America
<i>fistulosa</i>	Am. Bergamot	{ 32 36	" " Suzuka & K. 1949	HSp	W: N. America

**MENTHA**  $x = 6, 9, 10$

<i>arvensis</i>	Field Mint	{ 12, 60, 72 54 72 64, 92	L. & L. 1942 Wolf 1929 Ruttle 1931a Nagao 1941	SpP	Eur., N. Asia
<i>requenli</i>		18	Ruttle 1931a	P	Cors., Sard.
<i>longifolia</i>	Horse Mint,	18	Heimans 1938	Sp	North Temp.
<i>(silvestris)</i>	Jap.	{ 24 24 48	Ruttle 1931a, Junell, L. & L. '42b Suzuka & K. 1949		
	Peppermint	{ 18 24 54	Heimans 1938 Nagao 1941, Schürhoff 1929b	P	Europe
<i>rotundifolia</i>	Apple Mint	{ 24 54	Ruttle 1931a Schürhoff 1929b	P	Egypt
<i>niliaca</i>	Egyptian M.	{ 24, 56 36	Ruttle 1931a Schürhoff 1929b	P	North O.W.
<i>spicata</i>	Spear Mint	{ 36, 48 36	L. & L. 1942 Nagao 1941		
<i>as viridis</i>	White S.M.	48	" "		
	Ital. Black S.M.	84	" "		
	Am. Black S.M.	{ 36 c. 96	Schürhoff 1929b Ruttle 1931a	P	Eur., Asia, N. Afr
<i>aquatica</i>	Water Mint	{ 36, 64 66, 68, 70	Glotov 1940 Ruttle 1931a	PSp	" " "
<i>piperita</i>	Peppermint	{ 72, 84 68, 72 (128)	Nagao 1941 " " Glotov 1940	P P	
<i>v. officinalis</i>	White P.				
<i>v. vulgaris</i>	Black P.				
<i>pulegium</i>	Pennyroyal	20, 40	Ruttle 1931a	MSP	North O.W.

**LAVANDULA**  $x = 6, 9, x_2 = 15$

<i>multifida</i>		24	Garcia 1942	HP	W. Medit.
<i>pedunculata</i>		30	" "	H	"
<i>stoechas</i>		30	" "	H	Medit.
<i>viridis</i>		30	" "	—	Port., Madeira
<i>spica</i>	Spike L.	36	Laws 1930	HP	Medit.
<i>vera v. nana</i>	Lavender	48	E.K.J.*	HP	"
<i>v. delphinensis</i>	"	50	Makino 1951		
<i>v. fragrans</i>	"	50	" "		
<i>officinalis</i>	"	54	Garcia 1942	HP	"
<i>lanata</i>		54	" "	—	Spain
<i>latifolia</i>		54	" "	HP	Medit.

**SALVIA**  $x = 6-11, 13, 17, 19$

$x = 6$

<i>hispanica</i>		12	Scheel 1931	H	Trop. America
<i>aethiopis</i>		24	Felfoldy 1947	H	Medit.
<i>carduacea</i>		24	Stewart 1939	H	California
<i>eremostachya</i>		24	" "	—	"

# SALVIA (cont.)

<i>leucophylla</i>		24	Stewart 1939	—	California
<i>munzii</i>		24	" "	—	"
<b>x = 7</b>					
<i>dumetorum</i>		14	Sugiura 1937a	—	N. Eurasia
<i>officinalis</i>	Sage	14	Hruby 1935	Sp	Medit.
<i>superba</i>	Violet S.	14	Benoist 1937	H	cult
<b>x = 8</b>					
<i>glutinosa</i>		16	Hruby 1935	H	S. Eur.—Himal.
<i>grandiflora</i>		16	" "	H	Asia Minor
<i>sylvestris</i>		16	" 1941	H	E. Eur., N. Asia
<i>verticillata</i>	Lilac S.	16	" 1934a	H	Eur., Asia M., Caucasus
<i>columbariae</i>	Chia	{ 16	Stewart 1939	GH	California
		32	Carlson & S. 1936		
<i>apiana</i>		32	Stewart 1939	—	"
<i>clevelandii</i>		32	" "	—	"
<i>mellifera</i>		32	" "	—	"
<i>sonomensis</i>		32	" "	—	"
<i>splendens</i> (i)	Scarlet S.	32	Carlson & S. 1936	H	Brazil
<i>virgata</i>		32	Benoist 1937	H	S.E. Eur., S.W. Asia
<i>horminoides</i>	Wild Clary	64	Yakovleva 1933	—	S. Eur., N. Afr.
<b>x = 9</b>					
<i>austriaca</i>		18	Benoist 1937	—	S.E. Europe
<i>patens</i>	Gentian S.	18	Sugiura 1937a	H	Mexico
<i>verbenacea</i>	Vervain	{ 54	Benoist 1937	H	Eur., S.W. Asia
		64	Yakovleva 1933		
<i>pratensis</i>	Meadow S.	18	Benoist 1937	H	Eur., Cauc.
<i>v. tenorii</i>		20	Sugiura 1936b		
<b>x = 10</b>					
<i>coccinea</i>		20	" "	H	Trop. N. Amer.
<i>farinacea</i>		20	" "	H	Texas, Mexico
<i>splendens</i> (ii)		20	Furusato 1940	H	Brazil
<i>podolica</i>		20	Hruby 1941	—	Europe
<b>x = 11</b>					
<i>argentea</i>		22	Sugiura 1936b	H	Medit.
<i>jurisicii</i>		22	Hruby 1948	H	Serbia
<i>nemecii</i>		22	" "	—	Europe
<i>nutans</i>		22	Benoist 1937	H	S.E. Europe
<i>sclarea</i>	Clary	22	Suzuka 1950a	HM	S. Europe
<i>carnosa</i> v. <i>gilmani</i>		22	Stewart 1939	H	W: N. America
<i>v. pilosa</i>		32	" "		
<b>x = 13 (6 + 7)</b>					
<i>spathacea</i>		26	" "	H	California
<b>x<sub>1</sub> = 17 (8 + 9)</b>					
<i>valentina</i>		34	Benoist 1937	—	Spain
<b>x<sub>1</sub> = 19 (9 + 10)</b>					
<i>algeriensis</i>		38	" "	—	N. Africa
<i>barrelieri</i> ( <i>pratensis</i> )		38	" "	—	Eur., Cauc.

<b>AJUGA</b> $x = 7, 8$						
<i>chamaeplrys</i>	Ground Pine	28	Rutland 1941	—		Eur., S.W. Asia, N. Africa
<i>genevensis</i>		32	Scheerer 1940	H		Eur., S.W. Asia
<i>pyramidalis</i>		32	Favarger 1953	—		N. Eur., Alps
<i>reptans</i>	Bugle	32	Scheerer 1940	H		Eur., W. Asia, N. Afr.
<b>PRUNELLA (BRUNELLA)</b> $x = 7, 8?$						
<i>asiatica</i>		28	Suzuka & K. 1949	—		E. Asia
<i>grandiflora</i>		28	Bøcher 1949	H		Europe
		32	Hruby 1932			
<i>vulgaris</i>	Self Heal	28	Bøcher 1949	H		N. Temp.
		32	Hruby 1932			
<i>laciniata</i>		32	" "	—		Eur., W. Asia, N. Africa
<b>TRICHOSTEMA</b> $x = 7, 10, 19$						
<i>brachiatum</i>		14	Lewis 1945	—		E: N. America
<i>lanceolatum</i>		14	" "	—		W: N. America
<i>oblongum</i>		14	" "	—		" "
<i>ovatum</i>		14	" "	—		California
<i>austromontanum</i>		28	" "	—		"
<i>lanatum</i>	Blue Curls	20	" "	H		"
<i>parishii</i>		20	" "	—		"
<i>dichotomum</i>		38	" "	H		E: N. America
<i>setaceum</i>		38	" "	—		" "
<b>GALEOPSIS</b> * $x = 8$						
<i>pubescens</i>		16	Müntzing 1932	—		Europe
<i>speciosa</i>	& 3 spp.	16	" "	—		"
<i>tetrahit</i>	Hemp Nettle	32	" "	—		"
<i>bifida</i>		32	" "	—		N. & C. Europe
<b>MELISSA</b> $x = 8$						
<i>officinalis</i>	Balm	32	Reese 1952a	MSP		Eurasia
<b>OCIMUM</b> $x = 8$						
<i>basilicum</i>	Basil	48	Vaarama 1947a	HMSp		Trop. Asia, Afr.
<i>gratissimum</i>		64	Golubinski, T. 1938	HP		India
<i>sanctum</i>	Tulsi	64	" "	HM		O.W. Tropics
<i>canum</i>		64, 128	" 1937 "	P		Trop. Asia & Afr.
<i>canum</i> $\times$ <i>grat.</i>		64 (128)	Lapin 1939	—		<i>expt.</i>
<b>SCUTELLARIA</b> * $x = 8?$						
<i>albida</i>		32	Scheel 1931	—		S.E. Europe
<i>galericulata</i>	& 3 spp.	c. 32	" "	H		N. Temp.
<i>altissima</i>		34	Reese 1953	—		S. Europe
<b>ORIGANUM</b> $x = 8?$						
<i>vulgare</i>	Pot Marjoram	30	Rutland 1941	Sp		Eur., Asia, N. Afr.
		32	Scheerer 1939			
<b>ACINOS (CALAMINTHA)</b> $x = 9$						
<i>alpinus</i>		18	Reese 1953	—		Europe
<i>arvensis</i> ( <i>C. acinos</i> )		18	Scheerer 1939	H		"

<b>LAMIUM</b> $x=9$					
<i>amplexicaule</i>	Henbit	18	Bernström 1944	—	Eurasia, N. Afr.
<i>album</i>	Wh. Deadnettle	18	Turesson 1938	M	Eur., Himal.
<i>maculatum</i>		18	Jørgensen 1927a	H	Eur.—Altai
<i>purpureum</i>		18	Bernström 1944	—	S. Eur.—Altai
<i>molucellifolium</i>		36	" "	—	N.W. Europe
<i>hybridum</i>		36	" "	—	W. Eur., N. Afr.
<b>GALEOBDOLOON (LAMIUM)</b> $x=9$					
<i>luteum</i>	Yellow Archangel	18	Turesson 1938	—	Eur.—Persia
<i>(L. galeobdolon)</i>					
<b>MOSLA</b> $x=9$					
<i>punctata</i>		18	Sugiura 1936b	—	Japan
<b>LEONURUS</b> $x=9, 10$					
<i>cardiaca</i>	Motherwort	18	Rutland 1941	H	W. Europe
<i>sibiricus</i>		20	Suzuka 1950a	H	E. Asia
<b>MARRUBIUM</b> $x=9?$					
<i>vulgare</i>	Wh. Horehound	{ 34	Rutland 1941	M Sp	Eurasia
		36	Wulff 1939b		
<b>GLECHOMA (NEPETA)</b> $x=9$					
<i>hederacea</i>	Ground Ivy	{ 18	Scheerer, L. & L. '42	H	Eurasia
		24	L. & L. 1942a		
		36	Felföldy 1947,		
		36	Rutland 1941		
<b>NEPETA</b> $x=9, 17$					
<i>macrantha</i>		18	S. & S. 1938	H	Siberia
<i>mussini</i>		18	Floto & G. 1947	H	Cauc., Persia
<i>nuda</i>		18	Sugiura 1940	—	S. Europe
<i>stachyoides</i>		18	" 1944	—	Algeria
<i>cataria</i>	Catmint	36	" 1940	HM	Eur.—Himal.
<i>grandiflora</i>		36	" "	—	Caucasus
<i>kokanica</i>		36	" "	—	Turkestan
<i>nepetella</i>		34	Floto & G. 1947	H	S. Europe
<i>pseudomussinii</i>		26	" "	H	<i>cult</i> (clone)
<i>(muss. × nepetella)</i> (17 + 9)					
<b>CLINOPODIUM (CALAMINTHA)</b> $x=10$					
<i>vulgare</i>	Wild Basil	20	Scheerer 1939	—	N. Temp.
<b>BALLOTA</b> $x=11$					
<i>nigra</i>	Black Horehound	22	Rutland 1941	H	Eur., S.W. Asia
<b>LYCOPUS</b> $x=11$					
<i>americanus</i>		22	Ruttle 1932	—	N. America
<i>europaeus</i>	Gipsywort	22	" "	—	S. Eur., N. Asia
<b>PYCNOSTACHYS</b> $x=17$					
<i>eminii</i>		34	Snoad 1952	—	Trop. Africa

<b>PERILLA</b> $x = ?$				
<i>ocimoides</i>	38, 40	Yamane 1950	—	E. Asia
<b>PROSTANTHERA</b> $x = ?$				
<i>violacea (thymifolia)</i>	c. 156	Snoad 1952	H	Australia
<b>SIDERITIS</b> $x = ?$				
<i>spinulosa</i>	22, 28, 30	Coutinho & L.-A. '48	—	Iber. Penin.
<i>hyssopifolia</i>	c. 32	Reese 1953	—	S. Eur. mtns.

# MONOCOTYLEDONS



## Group

### BUTOMALES

265, 266

H

### ALISMATALES

267–269

H

### TRIURIDALES

270

H

### JUNCAGINALES

271–273

H

### APONOGETONALES

274, 275

H

### POTAMOGETONALES

276–277

H

### NAJADALES

278, 279

H

### COMMELINALES

280–282

H

### XYRIDALES

283, 284

H

### ERIOCAULALES

285

H



*Hydrocharis morsus-ranae*



## 265 BUTOMACEAE

<b>TENAGOCCHARIS</b> $x = 7$				
<i>latifolia</i>	14	Y. S. Rao 1953b	—	O.W. Tropics
<b>HYDROCLEIS</b> $x = 8$				
<i>nymphoides</i> Water Poppy	16	Y. S. Rao 1953b	H	Brazil
<b>LIMNOCHARIS</b> $x = 10$				
<i>flava</i>	20	Y. S. Rao 1953b	H	Trop. America
<b>BUTOMUS</b> $x = 13$				
<i>umbellatus</i> Flowering Rush	26	Y. S. Rao 1953b	H	Temp. Eurasia
	26, 39 (3x)	L. & L. 1948		

## 266 HYDROCHARITACEAE

<b>ENHALUS</b> $x = 7$				
<i>acoroides</i> Sea Fruit	14	E.K.J.*	T(V)	N. Malaya, Austr.
<b>HYDROCHARIS</b> $x = 7$				
<i>morsus-ranae</i> Frog's Bit	28	Maude 1940	H	Eur., Temp. Asia
<b>LAGAROSIPHON</b> $x = 7, 11$				
<i>vaginalis</i>	14	E.K.J.*	Ma	E. Africa, India
<i>crispus</i>	22	Eichhorn 1943	—	E. Trop. Africa
<b>BLYXA</b> $x = 8$				
sp.	16	Y. S. Rao 1950b	—	O.W. Tr. & Sub-Trop.
<b>HYDRILLA</b> $x = 8$				
<i>verticillata</i>	16, 24	Sinoto 1929	FoMa	W. Indies
<b>ELODEA (HELODEA, ANACHARIS)</b> $x = 8$				
<i>callitrichoides</i>	16	Heitz 1927	H	S. America
<i>canadensis</i> Ditch Moss	24	Heppell 1945 *	H	N. America
	48	Santos 1924	H	
<i>densa</i>	48	M. & S. 1935	H	Argentina
<b>HALOPHILA</b> $x = 9$				
<i>ovata</i>	18	Harada 1951	—	Tr. Asia, Austr.
<b>VALLISNERIA</b> $x = 10$				
<i>spiralis</i>	20	Jorgensen 1927b	H	Cosmop.
<i>gigantea</i>	40	„ „	H	E. Indies
<b>OTTELIA</b> $x = 11$				
<i>alismoides</i>	{ 22, 66	Y. S. Rao 1950b	M(V)	Trop. Asia & Austr.
	44	Islam 1950		
<b>BOOTIA</b> $x = 11$				
sp.	66	Y. S. Rao 1950b	—	O.W. Tropics
<b>STRATIOTES</b> $x = 12$				
<i>aloides</i> Water Soldier	24	Schürhoff 1926	H	Europe

## 267 ALISMATACEAE

ALISMA  $x = 5, 6, 7, 13$

	10, 14, 16, 28	Wulff 1950		
	12	Palmgren 1943		
<i>plantago-aquatica</i>	14	Heppel, M. 1939	H	N. Temp.
Water Plantain	14	Woess 1948		
	14	Castro & W. 1950		
<i>gramineum</i>	14	Erlandsson 1946		
	14	Woess 1948		
<i>triviale</i>	14	Erlandsson 1946		
	14	Brown 1946		
<i>lanceolatum</i>	26	Castro & W. 1950		
	26	Woess 1948		
	26, 28	L. & L. 1944b		
<i>subcordatum</i>	28	Erlandsson 1946		
	28	Brown 1946	—	N. America

BALDELLIA (ALISMA, ECHINODORUS)  $x = 7, 8, 9$

	14	Palmgren 1943		
<i>ranunculoides</i>	16	L. & L. 1944b	—	N. Europe
	18	Hagerup 1944		
	22	Clavier unp.		

ECHINODORUS  $x = 11$

<i>cordifolius</i>	22	Baldwin & S. '55b		N. America
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SAGITTARIA \*  $x = 11$  (10)

<i>montevidensis</i>	Giant Alisma	20	Taylor 1925b	H	S. America
<i>sagittifolia</i>	Arrowhead	20	Nawa 1928		
		22	L. & L. 1942	H	N. Temp.
<i>aginashi</i>		22	Shinke 1929		Japan
<i>natans</i>	& 12 spp.	22	Brown 1946		N. America
<i>latifolia</i>		22	Oleson 1941		"
<i>trifolia</i>		22	Morinaga & F. 1931		China, Japan

LIMNOPHYTON  $x = 12$

<i>obtusifolium</i>	24	Murthy 1933		Tr. Asia & Afr.
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## 268 SCHEUCHZERIAACEAE

SCHEUCHZERIA 11

<i>palustris</i>	22	Manton 1949	—	N. Temp.
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## 270 TRIURIDACEAE

SCIAPHYLLA  $x = 12?$

<i>japonica</i>	48	Ohga & S. 1932	—	Japan
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## 271 JUNCAGINACEAE

TRIGLOCHIN  $x = 6, 8$

<i>maritimum</i>	Arrowgrass	12	L. & L. 1944b		N. Temp.
		48	La Cour 1952		
<i>palustre</i>		24	L. & L. 1944b		

# TRIGLOCHIN *cont.*)

*barrelieri*

30 Castro & F. 1946

Medit., Trop. &  
S. Africa

*bulbosum*

32 La Cour 1952

## 275 ZOSTERACEAE

### ZOSTERA \*

*hornemanniana*

12 Wulff 1937a

— W. Europe

*marina* Eelgrass & 4 spp.

12 Harada 1948

Ma(Su) W. Eur., N. Am.

## 276 POTAMOGETONACEAE

### PHYLLOSPADIX $x = 10$

*iwatensis*

20 Harada 1944

Japan

*japonica*

16 ♂, 20 ♀

„ „

### POTAMOGETON \* $x = 13, 14$

$x = 13$

*acutifolius*

26 L. & L. 1942

—

Eur., Caus., Austr

*coloratus* & 9 spp.

26 Palmgren 1939

—

Europe

*oxyphyllus*

26 Harada 1942

—

Japan

*panormitanus*

26 „ „

—

N. & S. Temp.

*anguillanus* & 9 spp.

52 „ „

—

Japan

*fluitans*

52 Kuleszanka, T. 1935

—

Temp. & Trop.

*gramineus* & 2 spp.

52 Palmgren 1939

—

Europe

*perfoliatus*

52 Felföldy 1947

—

N. & S. Temp.

*filiformis*

c. 78 L. & L. 1942

—

N. America

*pectinatus*

78 Harada 1942

—

N. & S. Temp.

$x = 14$

*cristatus*

28 „ „

—

America

*monogynus*

28 „ „

—

Europe

*vaseyi*

28 „ „

—

N. America

*fauriei*

29! „ „

—

Japan

*densus*

30 Palmgren 1939

—

N. Temp.

*apertus*

42 Harada 1942

—

Japan

*kamogawaensis*

42 „ „

—

„

*vaginatus*

c. 88 Palmgren 1939

—

N. & S. Temp

## 277 RUPPIACEAE

### RUPPIA $x = 8$

*maritima*

16 Wulff 1937a

—

Temp., Sub-Trop.

## 278 ZANNICHELLIACEAE

### ZANNICHELLIA $x = 7$

*palustris*

28 Scheerer 1940

—

Cosmop.

## 279 NAIADACEAE

NAIAS  $x = 6$

<i>marina (major)</i>	{ 12 ♀, 13 ♂	12 Lewitzky 1931a	Fo	Temp. & Trop.
<i>tenuicaulis</i>	12 ♀, 13 ♂	Harada 1943	—	Japan
<i>ancistrocarpa</i>	12, 24	" "	—	"
<i>flexilis</i>	12, 24	Chase 1947	—	Eur., Egypt
<i>minor</i>	{ 12	Harada 1943	—	Temp. & Tr. O.W.
	24	Chase 1947	—	
<i>foveolata</i>	12, 24, 34	Harada 1943	—	Java
<i>gracillima</i>	{ 12	" "	—	Temp. & Tr. O.W.
	24, 36	Chase 1947	—	
<i>guadalupensis</i>	{ 12, 36, 42	" "	—	W. Indies
	48, 54, 60	" "	—	
<i>graminea</i>	24	Harada 1943	—	Temp. & Tr. O.W.
<i>muenschieri</i>	24	Chase 1947	—	U.S.A.
<i>oguraensis</i>	24	Harada 1943	—	Japan
species	46	" "	—	

## 280 COMMELINACEAE

POLLIA  $x = 5, 19$

<i>subumbellata</i>	10	Darlington 1937b	—	Himalayas
<i>japonica</i>	38	Mitsukuri 1947	—	Japan

RHOEO  $x = 6$

<i>discolor</i>	12 (24)	Walters & G. 1948	H	C. America
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SETCREASEA (TRELEASEA)  $x = 6$

<i>brevifolia</i>	{ 12, 24	Richardson 1935b	—	Texas
	36	Anderson & S. 1936	—	
<i>pallida</i>	12, 36	Celadier 1955	—	Mexico
<i>tumida</i>	24	" "	—	"

ZEBRINA  $x = 6$

<i>pendula</i>	24, 48	Darlington 1929a	H	Mexico
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SPIRONEMA  $x = 6$

<i>fragrans</i>	12	Darlington 1929a	H	Mexico
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CALLISIA  $x = 6$

<i>repens</i>	12	Anderson & S. 1936	—	S. America
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CUTHBERTIA  $x = 6$

<i>graminea</i>	12, 24, 25, 36, 37	Giles 1942	—	S.E. U.S.A.
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WELDENIA  $x = 6$

<i>candida</i>	{ 18	La Cour 1952	H	Mexico
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TRADESCANTIA  $x = 6, 8, 12, 13, 15, 18$

$x = 6$  (*virginiana* group)

<i>bracteata</i>	12, 18	Anderson & S. 1936	—	E. & S. U.S.A.
<i>canaliculata</i>	12, 24	" "	—	" "

# TRADESCANTIA (cont.)

<i>edwardsiana</i>	12	Anderson & S. 1936	—	E. & S. U.S.A.
<i>ernestiana</i>	12	" "	—	" "
<i>hirsuticaulis</i>	12	" "	—	" "
<i>hirsutiflora</i>	24	" "	—	" "
<i>humilis</i>	12	" "	—	" "
<i>gigantea</i>	12	" "	—	" "
<i>longipes</i>	24	" "	—	" "
<i>occidentalis</i>	12, 24	" "	—	" "
<i>ozarkana</i>	24	" "	—	" "
<i>paludosa</i>	12 + 0-12B	" "	—	" "
<i>reverchoni</i>	24	Brown <i>et al.</i> 1951	—	" "
<i>roseolens</i>	24	Anderson & S. 1936	—	" "
<i>subaspera</i>	24	" "	—	" "
<i>tharpai</i>	24	" "	—	" "
<i>virginiana</i>	Spiderwort 24 + 0-6B	Darlington 1929a	H	cult

$x = 6, 7, 8, 12$ , etc.

<i>iridescens</i>	12	Atchison <i>et al.</i> 1949	—	Mexico
<i>crassifolia</i>	12 + 0-2B	Darlington 1929a	H	S. America
<i>commelinoides</i>	14	Celariet 1955	—	Mexico
<i>rosea</i>	24	Anderson & S. 1936	—	U.S.A.
<i>reflexa</i>	24, 26	Mitsukuri 1947	—	"
<i>micrantha</i>	26	Anderson & S. 1936	—	Mexico
<i>geniculata</i>	{ 32	" "	—	S. America
	48	Simmonds 1954	—	
<i>navicularis</i>	32	Anderson & S. 1936	—	Peru
<i>fluminensis</i>	Wandering Jew 60	Anderson & S. 1936	H	
<i>as albiflora</i>	72	—	—	Brazil

## CAMPELIA $x =$

<i>zanonia</i>	16	Darlington 1937b	—	Mex.—Brazil
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## TRIOGANDRA (DESCANTARIA, NEODONNELLIA) $x = 8$

<i>amplexicaulis</i>	16	Celariet 1955	H	Cent. America
<i>disgrega</i>	16	Darlington 1937b	H	" "
<i>pflanzii</i>	16	Celariet 1955	—	Bolivia
<i>grandiflora</i>	32	Wu 1941	H	Guatemala
<i>cumanensis</i>	48	Celariet 1955	—	Cent. America
<i>elongata</i>	{ c. 50	Simmonds 1954	—	C. & S. Amer.
	60	Saura 1948b	—	

## ANEILEMA $x = 10$

<i>nudiflorum</i>	Bird's Foot Gr. 20	Simmonds 1954	FoV	S.E.: Asia
<i>keisak</i>	30	Mitsukuri 1947	—	Japan
<i>spiratum</i>	40	Murthy 1934	FoV	India

## CYANOTIS $x = 10, 12, 14$

<i>axillaris</i>	20	Islam & B. 1952	—	India
<i>cristata</i>	24 + 0-1B	" "	H	India, Malaya
<i>somaliensis</i>	28	Anderson & S. 1936	H	E. Africa

## COMMELINA $x = 11, 12?, 15?$

<i>bengalensis</i>	22, 68	Ganguly 1946, D. '29a (Fo)V	—	O.W. Tropics
<i>diffusa</i>	30	Simmonds 1954	H	Tropics
<i>communis</i>	48, 90	Mitsukuri 1947	—	China
<i>elegans</i>	c. 52	Simmonds 1954	H	S: U.S.A.
<i>nudiflora</i>	56	Anderson & S. 1936	FoV	Tropics

# COMMELINA (cont.)

<i>hirtella</i>	c. 58	Bowden 1940a		E: U.S.A.
<i>coelestis</i>	90	Anderson & S. 1936		Mexico
<i>salicifolia</i>	75	Sharma 1955		India
<i>obliqua</i>	150			

# COMMELINANTIA $x = 13$

<i>anomala</i>	26	Anderson & S. 1936	H	Mexico
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# COLEOTRYPE $x = 18$

<i>natalensis</i>	36	Anderson & S. 1936	H	S. Africa
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# COCHLIOSTEMA $x = 19$

<i>odoratissimum</i>	38	Geitler 1939	H	Ecuador
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# DICHORISANDRA $x = 19$

<i>thyrsiflora</i>	38	Anderson & S. 1936	H	Brazil
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# TINANTIA $x = ?$

<i>fugax</i>	{ 64	Anderson & S. 1936	—	Trop. America
	68	Darlington 1929a		

# PALISOTA $x = ?$

<i>bracteosa</i>	80	Anderson & S. 1936	H	Trop. Africa
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## 285 ERIOCAULACEAE

# ERIOCAULON $x = 8, 9$

<i>cinereum</i>	32	Erlandsson 1942a	—	Australia
<i>truncatum</i>	32	" "	—	India
<i>sexangulare</i>	36	" "	—	India, Madag

## Group II

### BROMELIALES

286

H

### ZINGIBERALES

287-292

H



*Musa* : " Gros Michel "



## 286 BROMELIACEAE

### TILLANDSIA $x = 8$

<i>usneoides</i>	Old Man's Beard	32	Billings 1904	HT	Trop. America
<i>lindeniana</i>		64	Lindschau 1933	T	Brazil
<i>streptophylla</i>		64	" "	HT	Mexico
<i>junccea</i>		c. 96	" "	T	Trop. America

### BROMELIA $x = 8$

<i>fastuosa</i>		c. 96	Lindschau 1933	HT	Trop. America
<i>pinguin</i>	Wild Pineapple	96	Collins & K. 1931	HT	" "

### CRYPTANTHUS $x = 9, 17$

<i>acaulis</i>		{ 34	M. & S. 1935	H	Brazil
		{ 36	Lindschau 1933	H	
<i>zonatus</i>		36	" "	H	"
<i>bivittatus</i>		36, 54	" "	H	S. America
<i>beuckeri</i>		54	" "	H	Brazil

### AREGELIA \* $x = (9), 27$

<i>marmorata</i>	& 4 spp.	54	Lindschau 1933	H	Brazil
<i>microps</i>		c. 126	" "	H	cult

### BILLBERGIA \* $x = (9), 27$

<i>liboniana</i>		54	M. & S. 1935	H	Brazil
<i>ligulata</i>	& 6 spp.	54	Lindschau 1933	H	S. America
<i>vittata</i>		72	" "	H	Brazil
<i>sp.</i>		108	M. & S. 1935		—

### NIDULARIUM \* $x = (9), 27$

<i>princeps</i>	& 3 spp.	54	Lindschau 1933	H	Brazil
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### AECHMEA \* $x = 25, 27$

<i>comata</i>	& 4 spp.	50	Lindschau 1933	H	Trop. America
<i>hystrix</i>		54	" "	H	Brazil

### CARAGUATA $x = 28$

<i>zahnii</i>	Caraguata	56	Lindschau 1933	T	Trop. America
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### ACANTHOSTACHYS $x = 25$

<i>strobilacea</i>		50	Lindschau 1933	—	Brazil
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### CANISTRUM $x = 25$

<i>roseum</i>		50	Lindschau 1933	H	Brazil
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### MACROCHORDIUM $x = 25$

<i>tinctorium</i>		50	Lindschau 1933	—	Brazil
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### DYCKIA $x = 25$

<i>altissima</i>		50	Lindschau 1933	H	Brazil
<i>sulphurea</i>		50	" "	H	"

### PUYA $x = 25$

<i>spathacea</i>		50	Lindschau 1933	H	Argentina
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### HECHTIA $x = 25$

<i>ghiesbreghtii</i>		50	Lindschau 1933	H	Mexico
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<b>PITCAIRNIA</b> * $x = 25$				
<i>andreaea</i> & 4 spp.	50	Lindschau 1933	H	Ecuador—Venez.
<i>muscosa</i>	50	M. & S. 1935	H	Brazil
<i>punicea</i>	50	Lindschau 1933	H	Mexico

<b>ANANAS</b> $x = 25$				
<i>microstachys</i>	50	Collins 1933	FTVit	Brazil
<i>comosus</i> Pineapple	50, 75, 100	Collins & K. 1935	FTVit	cult, Brazil

<b>PSEUDANANAS (ANANAS)</b> $x = 25$				
<i>macrodontes</i>	c. 100	Lindschau 1933	—	Brazil

<b>LINDMANNIA</b> $x = 25?$				
<i>penduliflora</i>	c. 120	Lindschau 1933		Peru

## 287 MUSACEAE

<b>ENSETE</b> $x = 9$				
<i>edule</i>			HT	Trop. Africa
as <i>buchanani</i>	18	Cheeseman 1947		Nyasaland
as <i>davyae</i>	18	" "		Transvaal
as <i>Musa ensete</i>	18	Cheeseman & L. 1935		Abyssinia
as <i>livingstoniana</i>	18	Cheeseman 1947		Nyasaland
<i>gilletti</i>	18	" "		Trop. Africa
<i>pechelli</i>	18	E.K.J.		New Guinea
<i>superba</i>	18	Agharkar & B. 1935		E. Indies

<b>MUSA</b> $x = 10, 11$				
<b>S. 1. AUSTRALIMUSA</b> $x = 10$				
<i>textilis</i> Manila Hemp	20	Cheeseman & L. 1935	T	Philippines
<i>fehi</i> Fei, Borabora	20	Dodds 1946	F	Oceania
<i>lolodensis</i>	20	Simmonds & D. 1949	—	New Guinea
<i>peekelii</i>	20	" "	"	"
<i>erecta</i>	20	Simmonds 1953	—	Solomon Is.
<i>angustigemma</i>	20			New Guinea

<b>S. 2. CALLIMUSA</b> 10				
<i>borneensis</i>	20	Simmonds & D. 1949	—	Sarawak
<i>coccinea</i>	20	Cheeseman & L. 1935	TH	China
<i>violascens</i>	20	Simmonds & D. 1949	—	Malaya

<b>S. 3. EUMUSA</b> $x = 11$ (Bananas or Plantains)				
<i>acuminata</i> (incl. <i>banksii</i> , <i>malaccensis</i> , etc.)	22	Simmonds & D. 1949	—	S.E. Asia
edible & exp. forms 22, 33, 44 etc. ( <i>paradisiaca</i> , <i>cavendishii</i> , etc.)		Dodds & S. 1948	F	cult
<i>balbisiana</i>	22	Simmonds & D. 1949	—	S.E. Asia
edible & exp. forms 22, 33, 44 etc.		Dodds & S. 1948	F	cult
<i>acuminata</i> $\times$ <i>balbisiana</i> edible & exp. forms 22, 33, 44, etc. <i>sapientum</i> , etc.				cult
<i>basjoo</i> Bashofu	22	Simmonds & D. 1949	HT	Liukiu
<i>itinerans</i>	22	" "	—	Burma
<i>nagensium</i>	22	Wilson 1946	—	India

# MUSA (cont.)

## S. 4. RHODOCHLAMYS

11

<i>laterita</i>	22	Simmonds & D. 1949	—
<i>ornata</i>	22	Cheeseman & L. 1935	H
<i>sanguinea</i>	22	Simmonds & D. 1949	H
<i>velutina</i>	22	" "	—

Burma  
N.E. India  
Assam  
..

## 288 STRELITZIACEAE

### STRELITZIA $x = 7, 11$

<i>nicolai</i>	14	Sato 1948	H
<i>reginae</i> Bird of Paradise Fl.	14	Cheeseman & L. 1935	H
<i>augusta</i>	22	Simmonds 1954	H

S. Africa

### HELICONIA $x = 8, 11, 12 (13)$

<i>metallica</i>	16, 18, 20, 22	Agharkar & B. 1935	H
<i>seemannii</i>	22	Cheeseman & L. 1935	H
<i>bihai</i> False Plantain	24	" "	HV
as <i>aureo-striata</i>	24	Venkatasubban 1946	
<i>brevispatha</i>	24	Cheeseman & L. 1935	—
<i>brasiliensis</i>	{ 24	Venkatasubban 1946,	H
	24	Chakravorti 1949	
<i>illustris</i>	24	Venkatasubban 1946	H
<i>insignis</i>	24	Cheeseman & L. 1935	H
<i>psittacorum</i> Parrot P.	24	" "	H
<i>rubra</i>	26	Venkatasubban 1946	—

Ecuador—Colom.  
India  
W.I., Tr. S. Am.  
*cult*  
Mexico  
Brazil, Guiana  
Pacific Is.  
S. America  
" ?

### RAVENALA $x = 11$

<i>madagascariensis</i> Travellers' T.	22	Cheeseman & L. 1935	H
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Madagascar

## 290 ZINGIBERACEAE

### COSTUS $x = 9$

<i>cylindricus</i>	18	Simmonds 1954	T
<i>bicolor</i>	18	Venkatasubban 1946	—
<i>discolor</i>	18	Raghavan & V. 1943	H
<i>friedrichsenii</i>	18	Simmonds 1954	H
<i>igneus</i>	18	Raghavan & V. 1943	H
<i>malorteanus</i>	18	Gregory 1936	HT
as <i>elegans</i>	18	Venkatasubban 1946	
<i>niveopurpureus</i>	18	Simmonds 1954	—
<i>speciosus</i>	{ 18	Sato 1948	H
	36	Raghavan & V. 1943	
as <i>sericeus</i> (3x)	27	Simmonds 1954	

Trinidad  
Cameroons  
Brazil  
Cent. America  
Brazil  
Cent. America  
Martinique  
India, Malaya

<i>afer</i> Ginger Lily	36	Venkatasubban 1946	HSp
<i>pictus</i>	36	" "	H
<i>musaicus</i> c. 102	102	" "	H

Trop. Africa  
Mexico  
Congo, *cult*

### ZINGIBER $x = 11, 12$

<i>casumunar</i>	22	Raghavan & V. 1943	M
<i>zerumbet</i> Wild Ginger	22	" "	V
<i>mioga</i> Jap. Wild G.	55	Morinaga <i>et al.</i> 1929	Sp
<i>officinale</i> Ginger	{ 22	Raghavan & V. 1943	Sp
	+ 2B	E.K.J.*	

Trop. Asia  
"  
Japan  
Malaya, *cult*

# KAEMPFERIA $x = 9, 11, 12$

<i>atrovirens</i>	22	Venkatasubban 1946	H	Borneo
<i>speciosa</i>	22	"	—	India
<i>gibsoni</i>	24	Raghavan & V. 1943	—	—
<i>gilbertii</i>	36	"	H	India, Burma
<i>galanga</i>	54	"	MS <sub>L</sub>	India
<i>rotunda</i>	54	"	H	India, Java

# ALPINIA $x = 12$

<i>allughas</i>	Tara	48	Raghavan & V. 1943	M	India
<i>calcarata</i>		48	"	M	India, China
<i>chinensis</i>		48	Sato 1948	—	China
<i>galanga</i>	Siamese G.	48	Raghavan & V. 1943	Sp	Trop. Asia
<i>japonica</i>		48	Sato 1948	—	Japan
<i>nutans</i>		48	Raghavan & V. 1943	H	India
<i>rafflesiana</i> (vittata)		48	"	H	Malaya
<i>sanderae</i>		48	Venkatasubban 1946	H	cult

# AMOMUM (PHAEOMERIA) $x = 12$

<i>magnificum</i>		48	Venkatasubban 1946	H	E. Indies
		52	Chakravorti 1952		

# ELETTERIA $x = 12$

<i>cardamomum</i>	Malabar Card.	48	Gregory 1936	MSp	S. Ind., Burma
		52	Chakravorti 1952		

# GLOBBA $x = 12$

<i>bulbifera</i>		48	Raghavan & V. 1943	—	Malaya
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# PHAEOMERIA (NICOLAJA) $x = 12$

<i>atropurpurea</i>		48	Boehm 1931	H	Malaya
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# CURCUMA $x = 16, 21$

<i>longa</i>	Turmeric	{	32	Sato 1948		
	(domestica)		62	Raghavan & V. 1943	DSp	Malaya, cult
			64	Sugiura 1931		
<i>amada</i>	Mango G.		42	Raghavan & V. 1943	SpV	India
<i>aromatica</i>	Yellow Zedoary		42	"	MSp	"
<i>petiolata</i>			64	Venkatasubban 1946	DHSp	E. Asia
<i>zedoaria</i>	Zedoary		64	"	DHSp	India

# BRACHYCHILUS $x = 16$

<i>horsfieldii</i>		32	Holzer 1952	H	Java
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# HEDYCHIUM $x = 9?, 17, 26$

<i>flavescens</i>		34	Raghavan & V. 1943	H	India, Masc. Is.
<i>spicatum</i>		34	Sato 1948	H	India
<i>greenii</i>		36	Raghavan & V. 1943	H	"
<i>coccineum</i> v. <i>angustifolium</i>		52	Venkatasubban 1946	H	India, Burma
<i>flavum</i>		52	Raghavan & V. 1943	H	Himalayas
<i>coronarum</i>	Ginger Lily	54	"	H	India, China
<i>gardnerianum</i>		54	"	H	Himalayas
<i>elwesii</i>		66	Gregory 1936	HP	Assam
<i>gracile</i>		66	Raghavan & V. 1943	HSp	India

## 291 CANNACEAE

### CANNA $x = 9$

<i>discolor</i>		18	Offerijns 1935	H	Trop. W. Indies
<i>glauca</i>	Arrowroot C.	18	Honing 1928	HR	W. Ind., Mexico
<i>flaccida</i>		18	Belling, T. 1931	H	N. America
<i>humilis</i>		18	Offerijns 1935	H	China
<i>edulis</i>	Queensland A.	{ 18	Simmonds 1954	HR	Trop. America
		27	Venkatasubban 1946		
<i>indica</i>	Indian Shot	{ 18	Honing 1928	HR	Trop. America
		27	Belling 1925		
<i>limbata (aureo-vittata)</i>		18, 36	Honing 1928	H	Brazil

## 292 MARANTACEAE

### THALIA $x = 6$

<i>dealbata</i>	12	Suessenguth 1921	HT	S.E: U.S.A.
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### CALAGHEA $x = 4, 11, 12, 13$

<i>veitchiana</i>	{ 8	Sato 1948	H	Peru
	26	Venkatasubban 1946	H	Brazil
<i>mediopicta</i>	22	" "	H	
<i>insignis</i>	22	Sato 1948	H	
<i>grandiflora</i>	24	Venkatasubban 1946	H	
<i>lietzei</i>	24, 26		H	
<i>zebrina</i>	24, 26		H	
<i>lindeniana</i>	26		H	
<i>makoyana</i>	26		H	
<i>roseo-picta</i>	26		H	
<i>taeniosa</i>	52	Sato 1948	H	
as <i>Maranta asymmetrica</i>	24	Venkatasubban 1946		

### MARANTA $x = 6, 13$

<i>nitida-picta?</i>		Venkatasubban 1946		
<i>arundinacea</i> v. <i>variegatum</i>	{	Sato 1948	HR	Trop. Amer., W
W.I. Arrowroot		Simmonds 1954		Indies
as <i>Phrynium</i>		Venkatasubban 1946		
<i>bicolor</i>			H	Brazil, Guiana
<i>tigrina</i>				—
<i>nitida</i>	26	"		—
<i>leuconeura</i> v. <i>massangeana</i>	26	"	H	Brazil
<i>striata</i>	26	Sato 1948	—	?

### CTENANTHE $x = 9$

<i>oppenheimiana</i>	18	Sato 1948	H	Brazil
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### MONOTAGMA $x = 9$

<i>smaragdinum</i>	27	Sato 1948	H	Ecuador
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### STROMANTHE $x = ?$

<i>sanguinea</i>	{ 24	Suessenguth 1920	HR	Brazil
	44	Venkatasubban 1946		



## Group III

### LILIALES

293–298

H

### ALSTROEMERIALES

299–301

H

### ARALES

302, 303

H

### TYPHALES

304, 305

H

### AMARYLLIDALES

306

H

### IRIDALES

307

H



*Puschkinia libanotica*



## 293 LILIACEAE

*Order of the Tribes with their Basic Numbers*

I Scilleae: 3-15	XIV Veratreae: 8, 10, 11
II Allieae: 5-9	XV Asparageae: 10
III Tulipeae: 6-12	XVI Bowieae: 10
IV Kniphofieae: 6	XVII Anguillarieae: 10, 11
V Agapantheae: 6, 15	XVIII Tricyrtideae: 13
VI Aloineae: 7	XIX Narthecieae: 12, 13, 14, 15, 17
VII Asphodeleae: 7-13	XX Heloniadeae: 12, 17
VIII Uvularieae: 7, 8, 11	XXI Ophiopogoneae: 18
IX Polygonateae: 6-11	XXII Peliosantheae: 18
X Colchiceae: 7-27	XXIII Aspidistreae: 18, 19
XI Johnsonieae: 8	XXIV Convallarieae: 19
XII Milliganieae: 8	XXV Herrerieae: 27
XIII Dianelleae: 8, 9	

### TRIBE I: SCILLEAE

ORNITHOGALUM  $x = 3, 5, 6, 7, 8, 9$ , etc.

<i>virens</i>	6	Quintanilha & C. '47	H	Mozambique
<i>graminifolium</i>	10	Therman 1951	H	S. Africa
<i>libanoticum</i>	10	Geitler 1929b	—	Syria
<i>cydni</i>	12	Delaunay 1923	—	Asia Minor
<i>fimbriatum</i>	12	" 1926	H	
<i>leptophyllum</i>	12	Pienaar unp.	—	Transvaal
<i>pretoriense</i>	12			
<i>nanum</i>	12	Delaunay 1926	—	Greece, Asia M.
<i>thyrsoides</i> Chinchérinchees	12	Neves 1952	H	Cape
<i>zeyheri</i>	12	" 1953	—	S. Africa
<i>tenuifolium</i>	16	Delaunay 1926	H	S. Eur., Asia M.
<i>as gussonei</i>	18	Polya 1949		
<i>pyrenaicum</i> French	16 + 0-3B	Neves 1952	HV	S. Eur., S.W. Asia
Asparagus				
<i>v. flavescent</i>	16 + 0-1B, 24			
<i>exscapum</i>	18	Martinoli 1950	H	Dalmatia
<i>tempskyanum</i>	18	Delaunay 1926	—	Asia Minor
<i>umbellatum</i> Star of Bethlehem	18 + 0-6B, 27 + 0-1B, 36, 43, 45, 52, 54, 72	Neves 1952	H	Eur., Asia M., N. Africa
<i>pyramidale</i>	24		H	Medit
<i>boucheanum</i>	28	Lauber 1947	—	S.W. Asia
<i>nutans</i>	30, 42	Nakajima 1936, Holzer 1952	H	S. Europe, Asia Minor
<i>arcuatum</i>	32	Neves 1952	—	Caucasus
<i>lacteam</i>	32	Nakajima 1936	H	S. Africa
<i>unifolium</i>	34 + 0-1B	Neves 1952	H	W. Medit.
<i>concinnum</i>	36 + 0-6B			
<i>arabicum</i> (3x)	51		H	Medit.
<i>caudatum</i>	54	Therman 1951	H	S. Africa
<i>divergens</i>	54	Neves 1952	H	S. Europe
<i>narbonense</i>	54 + 0-11B		H	Medit., S.W. Asia

BELLEVALIA (HYACINTHUS)  $x = 4$

(i) <i>desertorum</i>	8	Feinbrun 1939	—	Palestine
<i>flexuosa</i>	8	" "	—	"

# BELLEVALIA (cont.)

<i>romana</i>	8	Feinbrun 1939	H	Italy, Greece
<i>sessiflora</i>	8	" "	—	Libya, Egypt
(ii) <i>ciliata</i>	8	" "	—	Algiers—Greece
<i>longipes</i>	8	" "	—	Assyria
<i>speciosa</i>	8	" "	—	Transcaucasia
<i>wilhelmsii</i>	8	" "	—	Caucasus
<i>palmyrensis</i>	16	" "	—	Syria
<i>stepporum</i>	16	" "	—	"
(iii) <i>dubia</i>	8	Chiarugi 1949	—	W. Medit.
<i>fornini</i>	8	Feinbrun 1939	—	E. Caucasus
<i>hackeli</i>	8	Levan 1944	—	Europe
<i>macrobotrys</i>	8	Feinbrun 1939	—	E. Caucasus
<i>trifoliata</i>	8	" "	—	N.E. Medit.
<i>webbiana</i>	{ 8	" "	—	Tuscany
<i>warburgii</i>	16	Chiarugi 1949	—	Palestine
<i>alexandrina</i>	16	Feinbrun 1939	—	Alexandria
	24	" "	—	
(iv) <i>formiculata</i>	8	Delaunay 1926	—	—
<i>acutifolia</i>	8	" "	—	—

# DIPCADI $x = 4, 9$

<i>serotinum</i>	{ 8 + 0-1B	Levan 1944	H	S. Eur., N. Africa
	8 + 2-16B	Fernandes <i>et al.</i> 1948	H	
		Resende & F. 1946	H	
<i>glaucum</i>	18	La Cour unpub.	H	S. Africa
<i>fulvum</i>	34	Battaglia 1954	H	N. Africa

# SCILLA $x = 4, 6, 7, 8, 9, 10, 11$

<i>obtusifolia</i>	8	Martinoli 1949	—	Sard., N. Africa
<i>sibirica</i>	12	Sato 1935a	H	E. Eur., Asia M.
<i>permixta</i>	14 + 0-2B	" 1936	H	—
<i>hughii</i>	16	Maugini 1953a	—	Marettimo
<i>italica</i>	16	Dark 1934	H	S. Europe
<i>lingulata</i>	16	Sato 1942	H	Alg., Morocco
<i>peruviana</i>	{ 16	" 1935a	H	Medit. (sic)
Cuban Lily	14, 16, 22, 23, 28	Battaglia 1949a, c, '50b	H	
<i>as ughii</i>	15, 17, 19, 20, 22	Sato 1942	H	
<i>pratensis</i>	{ 28	Maude 1940	H	Croatia
	26	Sato 1942	H	
	14	Battaglia 1952b	H	
<i>autumnalis</i>	{ 28, c. 42	Maude 1939, 1940	H	Medit., Cauc.
	29	Sato 1942	H	
<i>bifolia</i>	18	" 1935a	H	Eur., Asia
<i>chinensis</i>	18, 26, 34, 35	" 1942	H	China
<i>numidica</i>	18	Battaglia 1953	—	Algeria
<i>hyacinthoides</i>	20	Sato 1935a	H	S. Europe
<i>monophylla</i>	20	Fernandes <i>et al.</i> '48	H	Portugal, Spain
<i>ramburei</i>	20	" "	—	W. Europe
<i>verna</i>	22	Maude 1940	H	"
<i>japonica</i>	26, 34, 36, 42, 44	Sato 1935a	H	Japan
<i>indica</i>	{ 30	Sheriff & M. 1946	HM	Trop. Asia
	44, 45, 46, 58	Y. S. Rao 1953a	HM	

**PUSCHKINIA**  $x = 5$

<i>scilloides</i>	$\begin{cases} 10 \\ 16 \end{cases}$	Greeves, T. 1930	H	Asia M., Syria
<i>v. libanotica</i>	$\begin{cases} 10 \\ 10 + 4B \end{cases}$	Sato 1942 " " Darlington 1936b	H	" "

**URGINEA**  $x = 5$

<i>maritima</i>	Sea Onion	$\begin{cases} 10 + 2B \\ 20 + 1-4B, 30 \\ 20, 30, 40 \end{cases}$	Geitler 1929a, b Raghavan & V. '40 Giuffrida 1950	HM	Medit.
<i>indica</i>		20	Raghavan 1935	—	Ind., Bur., Tr. Afi.
<i>polyphylla</i>		20	" & V. '40	M	India
<i>undulata</i>		20	Martunoli 1949	H	Medit.
<i>fugax</i>		21, 24	" "	—	"

**LACHENALIA**  $x = 7, 8, 11, 13$

(i) <i>rubida</i>	14	Moffett 1936	H	S. Africa
<i>membranacea</i>	14	" "	H	"
<i>tricolor</i>	14, 21	" "	H	"
<i>glaucina</i>	28	" "	H	"
<i>pendula</i>	42	" "	H	"
(ii) <i>rosea (isopetala)</i>	14	" "	H	"
<i>elegans</i>	28	" "	H	"
(iii) <i>liliflora</i>	16	" "	H	"
<i>nervosa</i>	16	" "	H	"
<i>pallida</i>	16	" "	H	"
<i>purpureo-coerulea</i>	16	" "	H	"
<i>unicolor fragrans (versicolor)</i>	16	" "	H	"
<i>orchioides</i>	16, 17	" "	H	"
<i>pustulata</i>	32	Sato 1942	H	"
(iv) <i>unifolia</i>	22	Moffett 1936	H	"
sp.	26	" "	H	"

**ENDYMION (SCILLA)**  $x = 8$

<i>hispanicus (S. campanulata)</i>	16	Sato 1935a	H	Spain
<i>non-scriptus</i> Bluebell	16	" "	H	Europe
<i>(S. nutans)</i>				

**GALTONIA**  $x = 8$

<i>candicans</i> Summer Hyac.	16	Newton 1924	H	S. Africa
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**DRIMIOPSIS**  $x = 8$

<i>maculata</i>	64	Sato 1942	H	S. Africa
<i>botryoides</i>	80	M. & S. 1935	—	"

**HYACINTHUS**  $x = 8, 9, 14$

<i>orientalis</i> Hyacinth	16	Darlington <i>et al.</i> '51	H	Greece, Asia M.
garden forms	16-31	" "		
<i>azureus</i>	18	Chiarugi 1950	H	Asia Minor
<i>amethystinus</i>	28	Darlington 1932b	H	Pyrenees
<i>pouzolzii (fastigiatus)</i>	28	Chiarugi 1950	H	Cors., Sard.

**ALBUCA**  $x = 9$

<i>nelsoni</i>	18	Sato 1942	H	Natal
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# MUSCARI $x = 9$

<i>alpinum</i>	18	Chiarugi 1950	H	Asia Minor
<i>argaei</i>	18	Delaunay 1926	—	Greece
<i>caucasicum</i>	18	" "	H	Caucasus
<i>comosum</i> Feather H.	18	" "	H	Medit., S.W. Asia
<i>as tenuiflorum</i>	18 + 0-2B	" "		
<i>latifolium</i>	18 + 0-2B	" "	H	Asia Minor
<i>longipes</i>	18	" "	H	Palestine
<i>moschatum</i> Musk H.	18	" "	H	Asia Minor
<i>polyanthum</i>	18 + 0-2B	" "	H	"
<i>armeniacum</i>	{ 18	Greeves, T. 1931	H	"
	{ 36	Haque 1952		
<i>commutatum</i>	{ 18	Chiarugi 1950	H	Sicily
	{ 45	Delaunay 1926		
<i>botryoides</i> Grape Hyacinth	{ c. 48	M. & S. 1935	H	Eur., S.W. Asia
	{ 63	Sato 1942		
<i>conicum</i>	36	Greeves, T. 1931	H	S. Europe
<i>pallens</i>	36	Delaunay 1926	H	Caucasus
<i>racemosum</i>	{ 36	Chiarugi 1950		
	{ 45	Delaunay 1926	H	Medit., Cauc.
	{ 54	Wunderlich 1937		
<i>neglectum</i>	{ 45	Delaunay 1926	H	Medit.
	{ 54	Sato 1942		
CHIONODOXA $x = 9, 10$				
<i>sardensis</i>	18	Greeves, T. 1930	H	Asia Minor
<i>luciliae</i>	{ 18	Müller 1912	H	"
	{ 20	Sato 1942		
CAMASSIA $x = 15$				
<i>esculenta</i> Quamash	30	Nakajima 1936	HR	U.S.A.
<i>cusickii</i>	30	Greeves, T. 1931	H	Oregon
<i>leichtlinii</i>	30	F. H. Smith 1942	H	California

# EUCOMIS $x = 15, 16$

<i>bicolor</i>	{ 30	M. & S. 1935	H	Natal
	{ 32	Darlington 1932b		
<i>autumnalis (undulata)</i>	{ 30	Koeperich 1930	H	S. Africa
	{ 60	Sato 1942		
<i>comosa (punctata)</i>	60	M. & S. 1935	H	"
<i>pallidiflora</i>	60	Sato 1935a	H	"

# VELTHEIMIA $x = 20$

<i>glauca</i>	40	Sato 1942	H	S. Africa
<i>viridifolia</i>	40	Coleman 1940	H	"

## TRIBE II: ALLIEAE

# BRODIAEA $x = 5, 6, 7, 8$

<i>californica</i>	{ 10	Johansen 1932	H	California
	{ 12	Burbank 1941		
<i>stellaris</i>	12	" "	H	"
<i>minor (purdyi)</i>	{ 12, 32	" "	H	Argentina
	{ 14	Johansen 1932		
<i>elegans</i>	32	Burbank 1941	H	California
<i>coronaria (grandiflora)</i>	{ 42	" "	HR	"
	{ 36	K. 1931		

**TRITELEIA (BRODIAEA)  $x = 5, 7, 8$**

<i>ixioides</i> v. <i>scabra</i>	10, 10 + B	Burbanck 1941	H	California
v. <i>analina</i>	50			
<i>peduncularis</i>	14, 28		H	
<i>hyacinthina</i>	Wild Hyacinth 28		H	
<i>lactea</i>	42-48	F. H. Smith 1933	H	W: N. America
<i>laxa</i>	Grass-Nut 18, 28, 42, 48	Burbanck 1941, '44	H	California
<i>bridgesii</i>	16	" 1941	H	Cal., Oregon
<i>crocea</i>	16	" 1941	H	California
<i>hendersoni</i>	32	" 1941	H	Oregon

**IPHEION (BRODIAEA, TRITELEIA)  $x = 6$**

<i>uniflorum</i>	{ 12	Saez 1949b	H	Argentina
	{ 12	Battaglia 1952a		

**BLOOMERIA  $x = 9$**

<i>aurea</i>	18	Sato 1942	H	S. California
<i>crocea</i>	18	Burbanck 1944	H	California

**DICHELOSTEMMA (BRODIAEA)  $x = 9$**

<i>volubile</i>	{ 18	Burbanck 1941	H	California
	{ 36	Johansen 1932		
<i>pulchellum</i>	Blue Dicks { 18	Burbanck 1941	H	W: U.S.A.
( <i>capitata</i> )	{ 72	Johansen 1932		
<i>congestum</i> ( <i>B. pulchella</i> )	36	Burbanck 1941	H	"

**BREVOORTIA (DICHELOSTEMMA)  $x = 8$**

<i>ida-maia</i>	Floral Fire c. 40	Johansen 1932	H	California
	Cracker 48	Burbanck 1941		

**ALLIUM \*  $x = 7, 8, 9$  (Apomixis)**

$x = 7$

<i>alleghehiense</i>	14	Levan 1932	—	N. America
<i>carmeli</i>	14	Feinbrun 1950	—	Palestine
<i>cernuum</i>	Wild Onion { 14	Levan 1935	(V)	N. America
	{ 16!	Brumfield 1941		
<i>moly</i> (apo.)	Lily Leek 14	Levan 1932	H	Europe
<i>ardelii</i>	14	Feinbrun 1950		
<i>hirsutum</i>	14	" "	—	Palestine
<i>narcissiflorum</i>	Narcissus O. 14	Levan 1932	H	Europe
<i>scorzoneraefolium</i>	14	Mensinkai 1940	—	S. Europe
<i>stellatum</i>	Prairie O. 14	Anderson 1931	(R)	N. America
<i>ursinum</i>	Ramsons 14	Levan 1932	HRV	Eur., N. As., Cauc
<i>pendulinum</i>	14, 18!	" 1935	H	Eur., N. Africa
<i>amplectens</i> (apo.)	(14), 21, 28	" 1940b	—	W: U.S.A.
<i>macranthum</i>	{ 14	" 1934	—	Himalayas
	{ 28	Mensinkai 1940		
<i>neapolitanum</i>	Daffodil O. { 14	Levan 1935	HRV	Eur., S.W. Asia
	{ 21, 35	Kefallinos unp.		
	{ 28	Feinbrun 1950		
<i>bidwelliae</i>	28	Mensinkai 1939	H	California
<i>validum</i>	Pacific O. 28	Levan 1935	—	N. America
<i>tartaricum</i>	Tartar O. 28-32	" 1931	V	E. Eur., Siberia

$x = 8$

<i>artemisiatorum</i>	16	Feinbrun 1950	—	Palestine
<i>ascalonicum</i>	Shallot & 5 spp. 16	Levan 1931	RV	cult
<i>aschersonianum</i>	16	Szelubsky 1950	—	S.W. Asia

# **ALLIUM (cont.)**

<i>callidictyon</i>		16	Araratian & T. 1945	—	S.W. Asia
<i>canadense</i>	Tree O.	16	La Cour 1945 *	V	N. America
<i>chloranthum</i>		16	Feinbrun 1950	—	S.W. Asia
<i>coppoleri</i>		16	" "	—	" "
<i>desertorum</i>		16	" "	—	Egypt
<i>dumetorum</i>		16	Szelubsky 1950	—	Palest., Leb.
<i>fistulosum</i>	Welsh O.	16	Levan 1935	V	Siberia
<i>fuscoviolaceum</i>		16	Araratian & T. 1945	—	Caucasus
<i>fuscum</i>		16	Diannelidis 1951	—	Eur., S.W. Asia
<i>kunthianum</i>		16	Araratian & T. 1945	—	Caucasus
<i>lusitanicum</i>	Perenn. Welsh O.	16	La Cour 1945 *	V	Medit.
<i>materculae</i>		16	Araratian & T. 1945	—	Caucasus
<i>meteoricum</i>		16	Diannelidis 1951	—	Greece
<i>modestum</i>		16	Feinbrun 1950	—	S.W. Asia
<i>moschatum</i>		16	Billeri 1954	—	Eur., S.W. Asia
<i>pallasii (pallyssium)</i>		16	Ono 1935	—	Siberia
<i>proliferum</i>		16	" "	RV	Persia, Bal.
<i>pyrenaicum</i>		16	" "	—	Pyrenees
<i>sativum</i>	Garlic & 17 spp.	16	Levan 1935	SpV	C. Asia
<i>stamineum</i>		16	Diannelidis 1951	—	S.W. Asia
<i>tel-avivense</i>		16	Szelubsky 1950	—	Palestine
<i>thunbergii</i>		16	Ono 1935	—	China, Japan
<i>viviparum</i>	& 11 spp.	16	Mensinkai 1940	—	Siberia
<i>ammophilum</i>		16, 32	Levan 1935	—	Europe
<i>carinatum</i>		16, 24, 25, 26	Woess 1947	—	"
<i>cepa</i>	Garden O.	16, 32	D'Amato 1948	RV	cult, Persia
<i>margaritaceum</i>		16, 32	Mensinkai 1940	—	Eur., S.W. Asia
<i>nipponicum</i>		{ 16	Ono 1935	—	Japan
		{ 32	Katayama 1936		
<i>odorum</i>	Fragrant-Fl. G.	16, 32	Håkansson 1951	H(V)	Siberia
<i>ramosum (odorum)</i>		16, 32	La Cour 1945 *	H	"
<i>schoenoprasum</i>	Chives	16, 24, 32	Levan 1936	V	N, Temp.
<i>scorodoprasum</i>	Racambol	16, 24	Woess 1947	RV	Eur., Cauc., Syria
<i>victoralis</i>		{ 16	Levan 1935	—	S. Eur., Asia
		{ 32	M. & S. 1935		
<i>yunnanense (mairei)</i>		16, 32	Levan 1935	—	China
<i>angulosum</i>	Mouse Garlic	16-100 !	" "	V	Siberia
<i>nutans</i>		16-108 !	" "	—	"
<i>condensatum</i>		17	Sato 1942	—	"
<i>ampeloprasum</i>	Wild Leek	32	La Cour 1945 *	V	Medit., S.W. Asia
<i>bakeri</i>		32	Katayama 1936	—	China, Japan
<i>ciliare</i>		32	Ono 1935	—	Eur., S.W. Asia
<i>cyaneum</i>		32	Mensinkai 1940	H	China
<i>deseglisei</i>		32	" 1939	—	Europe
<i>porrum</i>	Leek	32	Levan 1931	V	cult, Persia
<i>rotundum</i>		32	" "	—	Eur., Asia M.
<i>sikkimense</i>		32	" "	—	Himalayas
<i>splendens</i>		32	Sakai 1934	H	Siberia
<i>tuberosum</i>	Gynmit	32	La Cour 1945 *	V	Him., China, Jap
<i>oleraceum</i>	Field Garlic	{ 32	Levan 1937b	Sp	Eur., Cauc.
		{ 40	Woess 1947		
<i>vineale</i>	Crow G.	{ 32	Ono 1935	SpV	Eur., Cauc., Leb.
		{ 40	Fernandes et al. '48		

# **ALLIUM (cont.)**

<i>roseum</i>	32	Levan 1935	V	Medit.
<i>v. bulbiferum</i>	48	Messeri 1931		
	32	Ono 1935		
<i>senescens</i>	48	Mensinkai 1940	R	Eur., Siberia
	40	Ono 1935		
<i>babingtonii (ampeloprasum)</i>	48	Maude 1940	V	Ireland, S.W. Eng.
<i>x = 9</i>				
<i>karataviense</i>	18	Levan 1935	H	Turkestan
<i>pseudoflavum</i>	18	Araratian & T. 1945	—	Caucasus
<i>triquetrum</i>	18	Levan 1935	—	Eur., N. Africa
<i>zebdanense</i>	18	„ „	—	Syria, Armenia

# **NOTHOSCORDUM (ALLIUM) *x* = 8, 9 (Triploids Apomictic)**

<i>fragrans</i>	16, 24	Messeri 1931		
	18	Levan 1935		
	16-22	Garber 1944	HSp	Mexico
	19	D'Amato 1949c		
<i>striatum</i>	16	Levan 1935	—	S.E.: U.S.A.,
<i>as bivalve</i>	18	Beal 1932		Mexico

# **CALOSCORDUM *x* = 8**

<i>neriniflorum</i>	16, 17	Sato 1942		China
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# **MILLA *x* = 13?**

<i>biflora</i>	39	Sato 1942	H	Mexico
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## **TRIBE III: TULIPEAE**

# **CALOCHORTUS *x* = 6, 7, 8, 9, 10**

(i) <i>superbus</i>	12, 14	Beal & O. 1943	H	California
<i>catalinae</i>	14		H	„
<i>flexuosus</i>	14		H	Utah
<i>leichtlinii</i>	14		H	W: N. America
<i>palmeri</i>	14		H	California
<i>splendens</i> Lilac M.L.	14		H	„
<i>venustus</i> Wh. Mari- posa L.	14 + 0-1B		H	„
<i>luteus</i> Sego Lily	14 + 0-1B, 20, 21		HR	„
<i> davidsonianus</i>	28		H	„
<i>vesta</i>	28		H	N. America
(ii) <i>macrocarpus</i>	14		H	W: N. America
(iii) <i>clavatus</i>	16		H	California
<i>kennedyi</i>	16		H	„
<i>nuttallii</i> Sego Lily	16		H	W: N. America
<i>aureus</i>	32		H	S.W: U.S.A.
(iv) <i>ambiguus</i>	18		H	W: N. America
<i>gunnisoni</i>	18		H	S.W: U.S.A.
(v) <i>plummerae</i>	18		H	California
<i>weedii</i>	18		H	„
(vi) <i>barbatus</i>	36		H	Mexico
(vii) <i>albus</i>	20		H	California
<i>amabilis</i> Golden Globe T.	20		H	„
<i>amoenus</i> Purple Gl. T.	20		H	„
<i>pulchellus</i>	20		H	„
(viii) <i>apiculatus</i>	20		H	W: N. America

# CALOCHORTUS (cont.)

<i>elegans</i>	20	Beal & O 1943	H(R)	Oregon
<i>lobbii</i>	20	"	H	N. America
<i>monophyllus</i> Yellow Star T.	20	"	H	California
( <i>benthami</i> )				
<i>tolmiei</i> ( <i>maweanus majus</i> )	20	"	H	Oregon
(ix) <i>nudus</i>	20	"	H	California
<i>umbellatus</i>	20	"	H	
<i>uniflorus</i>	40	"	H	
(x) <i>howellii</i>	20	"	H	Oregon
<i>lyallii</i>	20	"	H	W: N. America
<i>nitidus</i>	20	"	H	
<i>persistens</i> ( <i>greenel</i> )	20	"	H	
<i>longebarbatus</i>	20, 30	"	H	
<i>pavonaceus</i> ( <i>douglasianus</i> )	40	"	H	
<i>lilacinus</i>	40	Fanshawe unp.	H	

## FRITILLARIA $x = 12$ : by fusion and fragmentation, 9, 13

### OLD WORLD GROUPS (little or no heterochromatin)

(i) <i>ruthenica</i>	18	Darlington 1936c	H	S.E. Eur., Cauc.
<i>nigra</i> ( <i>tenella</i> , <i>caussolensis</i> )	18 + 0-3B	La Cour 1951a		S. Eur., Cauc.
(ii) <i>acmopetala</i>	24	Darlington 1936c	H	Asia M., Syria
<i>askabadensis</i>	24			Transcaucasia
<i>aurea</i>	24	La Cour 1951a	—	Asia Minor
<i>camtschatcensis</i>	24, 36	Matsuura 1935	H	N.W. Amer., N.E. Asia, Japan
<i>caucasica</i> ( <i>armena</i> )	24	La Cour 1951a	—	Cauc., Asia Min.
<i>cirrhusa</i>	24	" "	H	Himalayas
<i>citrina</i>	24	Darlington 1936c	H	Asia Minor
<i>conica</i>	24	La Cour 1951a	—	Greece
<i>dasyphylla</i>	24, 36	Darlington 1936c	H	Asia Minor
<i>drenovskii</i>	24	" & L.C. '41	—	Balkans
<i>eggeri</i>	24	" 1936c	—	N.W. Persia
<i>elwesii</i>	24			W. Asia Minor
<i>gracilis</i>	24			Dalm., Monten.
<i>graeca</i>	24	La Cour 1951a	—	Greece, S. Maced.
<i>hispanica</i>	24	Darlington 1936c	—	Spain
<i>imperialis</i> Crown Imperial	24 + 0-12B	" "	H	Persia, Himal.
<i>involucrata</i>	24	" & L.C. '41	—	N.W. Italy, S.E. France
<i>karadaghensis</i>	24	" 1936c	—	N. Persia
<i>latifolia</i>	24, 36	" "	H	Caucasus
<i>libanotica</i>	24	" "	—	Syria, Palestine
<i>lusitanica</i>	24	La Cour 1951a	—	Portugal
<i>macrandra</i>	24	" "	—	Greece
<i>meleagris</i> Snake's Head L.	24	Darlington 1936c	H	Cauc., N. & C. Europe (?)
<i>meleagroides</i>	24	" "	H	C. Asia, S. Russia, Bulgaria
<i>messanensis</i>	24	La Cour 1951a	—	Sicily
<i>obliqua</i>	24 + 2B	Darlington 1936c	H	Greece
<i>oranensis</i>	24	" "		N.W. Morocco, Algeria, Tunis
<i>pallidiflora</i>	24	" "	H	S. Siberia
<i>ponica</i>	24	" "	H	S. Bal., Asia M.

# FRITILLARIA (cont.)

<i>pyrenalca</i>	24, 36	La Cour 1951a	H	Pyrenees
<i>tubiformis</i>	24	" "	H	Marit. Alps
<i>verticillata</i> (thunbergii)	24	Sato '42, Suzuka '50a	H	C. As., China, Jap

## NEW WORLD GROUPS (much heterochromatin)

(iii) <i>biflora</i>	Mission Bells	24	La Cour 1951a	H	California
<i>purdyi</i>		24	Beetle '44, La C. '51a	H	"
<i>lilacea</i>		24	"	H	"
<i>mutica</i>		24	La Cour 1953	H	"
<i>falcata</i>		{ 24, 25	Beetle 1944	H	"
			La Cour 1951a	H	"
<i>pluriflora</i>	Adobe L.	{ 24	Beetle 1944	H	"
		{ 24 + 2B	Darlington 1936c	H	"
<i>lanceolata</i>		{ 24 + 1B, 36	Beetle 1944	H	W: N. America
		{ 24 + 0-8B, 36, 48	" "	H	W: N. America
<i>recurva</i> (coccinea)		{ 24	" "	H	S. Ore.—Calif.
		{ 24 + 1B, 36	Darlington 1936c	H	S. Ore.—Calif.
<i>phacantha</i>		{ 24	" "	—	California
		{ 36	Beetle 1944	—	California
(iv) <i>pudica</i>		26, 39	Darlington 1936c	H	W: N. America

## KOROLKOWIA (FRITILLARIA) $x = 12$

<i>sewerzowi</i>	24	La Cour 1951a	—	C. Asia
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## NOMOCHARIS $x = 12$

<i>mairei</i>	24	Darlington 1936b	H	S.W. Szechuan, N. Yunnan
<i>pardanthina</i>	24	" "	H	W. Yunnan
<i>saluenensis</i>	24	" "	H	N.W. Yun., S.E. Tibet, N. Assam
<i>nana</i>	48	" "	H	Himalayas

## NOTHOLIRION $x = 12$

<i>campanulatum</i>	24	La Cour 1952	H	Up. Bur., Tibet, S.W. China
<i>macrophyllum</i>	24	La Cour unpub.	H	Himalayas
<i>thompsonianum</i>	24	Wylie unpub.	H	N. Him.—Afgh.

## CARDIOCRINUM (LILIUM) $x = 12$

<i>cordatum</i> (L. cordifolium)	24	Sansome & L.C. '34	H	Japan
<i>giganteum</i>	24	M. Sato 1932	H	Himalayas

## LILIUM $x = 12$

<i>amabile</i>	24	Sansome & L.C. '34	H	Korea
<i>auratum</i> Goldband L.	24 + 0-1B	Stewart 1947	HR	Japan
<i>bolanderi</i>	24	Sansome & L.C. '34	H	California
<i>brownii</i>	24	Sato 1932	H	China
<i>bulbiferum</i> v. <i>croceum</i>	24	Sansome & L.C. '34	H	S. Europe
<i>callosum</i>	24	Stewart 1947	H	C. China, Japan
<i>canadense</i> Meadow L.	24 + 0-1B	Stewart 1943, 1947	HR	E: N. America
<i>candidum</i> Madonna L.	24	Sansome & L.C. '34	H	S. Eur., Syria
<i>catesbaei</i>	24	Stewart 1947	H	S.E. U.S.A.
<i>cernuum</i>	24	Sansome & L.C. '34	H	N. Asia
<i>chalcedonicum</i> Sc. Turk's Cap	24	" "	H	Greece
<i>columbianum</i>	24	" "	H	W: N. America
<i>concolor</i> ( <i>cordium</i> )	24	M. Sato 1932	HR	C. China

# LILIUM (cont.)

<i>v. pulchellum</i>		24	Kumazava & K. '47	H	N.E. Asia
<i>dauricum</i>	Candlestick L.	24	M. Sato 1932	H	"
<i>davidi</i>		24	Beal 1942	H	W. China
<i>v. willmottiae</i>		24 + 0-1B	Stewart 1943, 1947	H	C. & W. China
<i>duchartrei</i>		24	Stewart 1947	H	W. China
<i>formosanum</i>		{ 24 + 0-2B (48)	M. Sato 1932 Emsweller & B. 1940	H	Formosa
<i>grayi</i>		24	M. Sato 1932	H	S.E.: U.S.A.
<i>hansoni</i>		24	" "	H	Korea
<i>henryi</i>		{ 24 + 1-2B 24 + 0-2B	Mather 1935 Stewart 1947	H	C. China
<i>humboldti</i>		24	Sansome & L.C. '34	H	California
<i>japonicum</i>		24 + 1-2B	" "	HR	Japan
<i>leichtlinii v. maximowiczii</i>		24	M. Sato 1932	H	Japan, Korea
<i>leucanthum</i>				H	China
<i>v. chloraster</i>		24	Stewart 1947	H	Hupeh
<i>longiflorum</i>	Easter L.	24	Goodspeed <i>et al.</i> '35	H	Japan
		(48)	Emsweller & L. 1943		
<i>martagon</i>		24 + 0-3B	Fernandes 1950b	HR	S. Europe
<i>medeoloides</i>	Wheel L.	24	Sansome & L.C. '34	H	Japan
<i>michauxii (carolinanum)</i>		24	Stewart 1947	H	S.E.: U.S.A.
<i>michiganense</i>		24	" "	H	E: N. America
<i>monodelphum</i>		24	" "	H	Caucasus
<i>neilgherrense</i>		24	Abraham 1939	H	Mtns, S. India
<i>occidentale</i>		24	Stewart 1947	H	S. Ore., N. Calif.
<i>pardalinum</i>	Leopard L.	24	Sansome & L.C. '43	H	California
<i>v. angustifolium (roczlii)</i>		24	" "	H	"
<i>parryi</i>		24	Stewart 1947	H	Calif., Arizona
<i>philadelphicum</i>	Orange Cup L.	24	Sansome & L.C. '34	H	E: N. America
<i>philippinense</i>		24	" "	H	Philippines
<i>pumilum (tenuifolium)</i>		24	" "	H	N.E. Asia
	Coral L.	24 + 0-2B	Stewart 1943		
<i>pyrenaicum</i>	Yellow T. C.	24	Sansome & L.C. '34	H	Pyrenees
<i>regale</i>	Royal L.	24	" "	H	W. China
<i>sargentiae</i>		24 + 0-1B	Stewart 1947	H	Szechuan
<i>speciosum</i>		24	Sansome & L.C. '34	HR	Japan
<i>sulphureum (myriophyllum)</i>		24	Stewart 1947	H	W. China—Up. Burma
<i>superbum</i>	Turks' Cap	24	" "	H	E: U.S.A.
<i>tsingtauense</i>		24 + 0-1B	" 1943, 1947	H	E. China, Korea
<i>wardii</i>		24	" 1947	H	S.E. Tibet
<i>tigrinum</i>	Tiger L.	{ 24 36 + 0-1B	M. Sato 1932 Sansome & L.C. '34	HR	China, Japan
<i>v. flaviflorum</i>		24	Kumazava & K. '47	H	Kyushu
(as <i>lancifolium v. fl.</i> )					
<i>hollandicum (umbellatum)</i>		24	Sansome & L.C. '34	H	<i>cult</i>
( <i>bulbiferum</i> × <i>maculatum</i> ?)					
<i>maculatum (elegans)</i>				H	Japan, <i>cult</i>
<i>v. batemanniae</i>		24 + 1B	Stewart 1943	H	<i>cult</i>
( <i>dauricum</i> × <i>concolor</i> ?)					
<i>testaceum</i>	Nankeen L.	24	Sansome & L.C. '34	H	"
( <i>chalcidonicum</i> × <i>candidum</i> )					

## TULIPA\* x = 12

### S. 1. ERIOSTEMONES

<i>australis</i>	& 11 spp.	24	Upcott & L. C. '36	H	S Eur., N. Afr.
<i>saxatilis</i>		36	" "	H	Crete

# TULIPA (cont.)

<i>sylvestris</i>	48	Upcott & L. C. '36	H	Europe
<i>turkestanica</i>	48	" "	H	S. Russia
<i>whittalli</i>	48	" "	H	Asia Minor

## S. 2. LEIOSTEMONES (brackets enclose species with mere colour differences)

(i) <i>batalini</i> & 2 spp.	24	Upcott & L. C. '36	H	Bokhara
{ <i>chrysantha</i>	24, 48	" "	H	Persia
{ <i>clusiana</i> Lady Tulip	24	" "	H	Kashmir
	48	" "	H	Himalayas
	60	" "	H	Medit.
(ii) <i>altaica</i>	24	" "	H	C. Asia
<i>ferganica</i>	24	La Cour *	H	"
<i>ostrowskiana</i>	24	Upcott & L. C. '36	H	E. Turkestan
<i>sprengeri</i>	24	" "	H	Asia Minor
<i>kolpakowskiana</i>	24, 48	" "	H	Turkestan
<i>korolkowi</i>	24, 48	" "	H	"
(iii) <i>borsczowi</i>	24 + 0-6B	" "	H	Pers., C. Asia
<i>cypria</i> & 5 spp.	24	" "	H	Cyprus
<i>aleppensis</i>	36	" "	H	Syria
<i>lanata</i>	36	" "	H	C. Asia
<i>praecox</i>	36	" "	H	S. Fr., N. Italy
(iv) { <i>armena</i>	24	" "	H	Asia Minor
{ <i>galatica</i>	24 + 2-12B	" "	H	"
<i>boetica</i>	24	" "	H	Greece
<i>planifolia</i>	24	" "	H	Europe
<i>rhodopea</i>	24	" "	H	Bulgaria
<i>suaveolens</i>	24	" "	H	S. Russ., Asia M
<i>gesneriana</i> Garden Tulip	24, 36	" "	H	cult, Persia
(v) <i>kaufmanniana</i> & 8 spp.	24	" "	H	Turkestan

## AMANA (TULIPA) x = 12

<i>latifolia</i>	24	Sato 1942	—	Japan
<i>edulis</i>	48	"	R	"

## ERYTHRONIUM\* x = 12

<i>dens-canis</i> Dog's Tooth V.	24	Hruby 1934b	H	Eur., N. Asia
<i>californicum</i>	24	La Cour *	H	California
<i>hendersonii</i> & 3 spp.	24	F. H. Smith 1955	H	Oregon
<i>grandiflorum</i> ( <i>japonicum</i> )	24	Sato 1942	H	W: N. America
<i>revolutum</i>	24	F. H. Smith 1955	H	" "
<i>albidum</i>	44	Cooper 1939	H	E: N. America
<i>americanum</i>	48	Haque 1951	H	" "

## GAGEA x = 12

<i>graminifolia</i>	24	Romanov 1936	—	Transcasp.
<i>minima</i>	24	Westergaard 1936	—	Eur., N. Asia
<i>soleirolii</i>	36	Martinoli 1950a	—	S. Europe
<i>tenera</i>	36	Romanov 1936	—	Turkestan
<i>arvensis</i>	48	T. 1938	H	Medit.
<i>sylvatica</i> ( <i>lutea</i> )	72	Westergaard 1936	H	Eur.—Himal.
<i>fistulosa</i>	c. 80	Bianchi 1946	H	Tyrol
<i>spathacea</i>	c. 102	Westergaard 1936	—	Europe

# LLOYDIA $x = 12$

*serotina*

{	24	Newton 1927,	H	Europe
	24	Bianchi 1946		

## TRIBE IV: KNIPHOFIEAE

### KNIPHOFIA $x = 6$

<i>abyssinica</i>	12	Janaki-Ammal 1950	—	Abyssinia
<i>breviflora</i>	12	" "	H	S. Africa
<i>burchellii</i>	12	Moffett 1932b	H	
<i>caulescens</i>	12	Janaki-Ammal 1950	H	
<i>comosa</i>	12	" "	H	Abyssinia
<i>foliosa</i>	12	" "	H	"
<i>galpini</i>	12	" "	H	Transvaal
<i>kirkii</i>	12	" "	H	Trop. S.W. Afr.
<i>leichtlinii</i>	12	Moffett 1932b	H	Abyssinia
<i>macowani</i>	12	Janaki-Ammal 1950	H	S. Africa
<i>modesta</i>	12	" "	H	
<i>multiflora</i>	12	" "	H	
<i>natalensis</i>	12	Moffett 1932b	H	
<i>nelsonii</i>	12	" "	H	
<i>northiae</i>	12	" "	H	
<i>praecox</i>	12	Janaki-Ammal 1950	H	
<i>sarmentosa</i>	12	Moffett 1932b	H	
<i>zululandiae</i>	12	Janaki-Ammal 1950	—	
<i>uvaria (aloides)</i>	R. Hot Poker 12, 13	Webber 1932	H	
<i>snowdenii (3x)</i>	(12), 18, (24)	Janaki-Ammal 1950	H	Uganda

## TRIBE V: AGAPANTHEAE

### TULBAGHIA $x = 6$

<i>aloides</i>	12	Sato 1942		S. Africa
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### AGAPANTHUS $x = 15$

<i>orientalis</i>	African L.	30	Darlington 1933a	H	S. Africa
<i>(umbellatus)</i>					

## TRIBE VI: ALOINEAE

### CHAMAEALOE $x = 7$

<i>africana</i>	14	Viveiros 1949	—	S. Africa
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### LEPTALOE $x = 7$

<i>albida</i>	14	Müller 1945	—	S. Africa
<i>saundersii</i>	14	" "	—	"

### LOMATOPHYLLUM $x = 7$

<i>orientale</i>	14	Resende 1937	—	Mascarene Is
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### POELLNITZIA $x = 7$

<i>rubriflora</i>	14	Viveiros 1949	H	S. Africa
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### ALOE\* $x = 7$

<i>arborescens</i>	14	Snoad 1951	H	S. Africa
<i>aristata</i>	14	" "	H	"
<i>brevifolia</i>	14	" "	H	"
<i>ferox</i>	14	Sato 1942	HM	"

# ALOE (cont.)

<i>greenii</i>	14	Snoad 1951	H	S. Africa
<i>humilis</i>	14	Sato 1942	H	"
<i>plicatilis</i>	14	Snoad 1951	HM	"
<i>saponaria</i>	14	" "	HM	"
<i>striata</i>	14	Müller 1945	H	"
<i>succotrina</i>	14	Resende 1937	HM	"
<i>variegata</i>	14	Snoad 1951	H	"
<i>vera</i>	14	Marshak 1934	HMV	Medit.

<i>ciliaris</i>	{ 42	Schnarf & W. 1939,	H	S. Africa
	42	Snoad 1951		
f. <i>gigas</i> (5x)	35!	Resende 1938		

110 spp. 14 — Africa

Ferguson 1926, Fernandes 1931, Kondo & M. 1943, Johansen 1929d, Müller 1945, Resende 1937, Sato 1937, 1942, Suto 1936, Snoad 1951

# ASTROLOBA (APICRA) $x = 7$

<i>aspera</i>	14	Ferguson, 1926	H	S. Africa
<i>deltioidea</i>	14	Resende 1937	H	
<i>foliolosa</i>	14	" "	H	
<i>spiralis</i>	14	" "	H	
<i>bicarinata</i> (3x)	21	" "	H	
<i>pentagona</i>	28	" "	H	

# GASTERIA\* $x = 7$

<i>verrucosa</i>	14	Resende 1937	H	S. Africa
<i>maculata</i>	{ 14	" "	H	
	28	Sato 1942		
<i>nigricans</i>	{ 14	" "	H	
	(21)	Riley 1948a		
	28	Ferguson 1926		
<i>cheilophylla</i>	14, 28	Sato 1937	H	"
44 spp.	14		H	"

Ferguson 1926, Marshak 1934, Resende 1937, Sato 1942, Snoad 1951, Suto 1936

# GASTERIA $\times$ ALOE $x = 7$

4 hybrids	{ 14	Sato 1937,	—	<i>expt.</i>
	14	Riley 1948b, 1950		
1 hybrid	28	Sato 1937		

# HAWORTHIA\* $x = 7$

<i>aristata</i>	14	Snoad 1951	H	S. Africa
<i>cymbiformis</i>	14	" "	H	"
<i>fasciata</i>	14	Sato 1942	H	"
<i>glabrata</i>	14	Snoad 1951	H	"
<i>margaretifera</i>	14	Sato 1942	H	"
<i>maughanii</i>	14	Snoad 1951	H	"
<i>planifolia</i>	14	" "	H	"
<i>tortuosa</i>	14	" "	H	"
<i>truncata</i>	14	" "	H	"
61 species	14		H	"

Ferguson 1926, Kondo & M. 1943, Pinto-Lopes 1944, 1946, Resende 1937, Resende & F. 1946, Sato 1937, 1942, Snoad 1951

# HAWORTHIA (cont.)

<i>attenuata</i>	{ 14	Snoad 1951	H	S. Africa
	28	Kondo & M. 1943		
<i>limifolia</i>	14, 28	Resende 1937	H	
<i>herrei</i>	{ 14	Snoad 1951	H	
	42	Pinto-Lopes 1944		
<i>reinwardtii</i>	{ 14, 21, 28	Snoad 1951, 1952	H	
	42	Sato 1942		
<i>tessellata</i>	{ 14, 28,	Resende 1937		
	28, 42, 56, c. 58		H	
<i>resendeana</i> (3x)	c. 61, 63	Viveiros 1949		
	21	Snoad 1952		
<i>carissoi</i>	28	Pinto-Lopes 1944	H	
<i>chalinii</i>	28	Resende 1937	H	
<i>greenii</i>	28	Pinto-Lopes 1944	H	
<i>subfasciata</i>	c. 28	Ferguson 1926	H	
<i>glauca</i>	{ 28	Snoad 1951	H	
	29	Resende 1939		
<i>brotereana</i>	35	Pinto-Lopes 1944	H	
<i>rewendetii</i>	35	" "	H	
<i>rubrobrunea</i>	35	Snoad 1951	H	
<i>sampaiana</i>	35, 36	" "	H	
<i>armstrongii</i>	42	Pinto-Lopes 1944	H	
<i>coarctata</i>	42	Snoad 1951	H	
<i>coarctatoidea</i>	42	" "	H	

## TRIBE VII: ASPHODELEAE

### EREMURUS x = 7

<i>altaicus</i>	14	Burström 1929	H	Manch., Siberia
<i>elwesii</i>	14	Sato 1942	H	<i>cult</i>
<i>himalaicus</i>	14	Burström 1929	H	Himalayas
<i>robustus</i>	14	" "	H	Turkestan
<i>spectabilis</i>	14	Upcott 1936a	HV	Asia M., Persia

### BULBINELLA x = 7

<i>robusta</i>	14	Hair unp.	—	S. Africa
<i>hookeri</i>	14	Hair 1942	H	New Zealand
<i>rossii</i>	14	Hair unp.	H	Campbell Is.

### ASPHODELINE x = 7

<i>lutea</i>	Asphodel	{ 28	Sato 1942,	H	Italy—Arabia
		28	La Cour 1952		

### ASPHODELUS x = 7

<i>fistulosus</i>	28	Lorenzo-Andreu 1951	H	S. Eur.—Afghan
<i>albus</i>	56	La Cour 1952	H	S. Europe
<i>ramosus</i>	{ 56	" "	H	"
	52	Sato 1942		
<i>lusitanicus</i>	56	Fernandes 1950b	—	Portugal

### ANTHERICUM x = 7, 8

<i>ciliatum</i>	14	M. & S. 1935	—	Venezuela
<i>roseum</i>	32	Stenar 1928	—	Tanganyika

# ANTHERICUM (cont.)

<i>ramosum</i>	32	Elvers 1932a	H	W. & S. Europe
	30	Bowden 1945a		
<i>liliago</i> St. Bernard Lily	32	Fernandes 1950b	H	S. Eur., N. Afr.
	64	Elvers 1932a		

# CHLOROPHYTUM (ANTHERICUM) $x = 7, 8$

<i>inornatum</i>	14	Baldwin & S. 1951c	—	W. Trop. Africa
<i>laxum</i>	14	" "	—	O.W. Tropics
<i>natalensis</i>	14	Sato 1942		
<i>ursabiriensis</i>	14	" "		
<i>comosum</i> (sternbergianum)	28	R. Yamazaki 1936	H	S. Africa
<i>elatum</i>	28	Sato 1942	H	"
<i>orchidastrum</i>	28	Baldwin & S. 1951c	—	O.W. Tropics
<i>viviparum</i>	28	" "	—	" "
<i>alismifolium</i>	16	" "	—	Trop. Africa
<i>sternbergianum</i>	32	Schnarf & W 1939	H	S. Africa

# BULBINE $x = 7, 12, 13$

<i>annua</i>	14	Straub 1938	H	S. Africa
<i>asphodeloides</i>	14	" "	—	"
<i>caulescens</i>	14	" "	H	"
<i>latifolia</i>	14	Snoad unpub.	—	"
<i>longiscapa</i>	14	" 1952	—	"
<i>mesembryanthemoides</i>	14	" "	—	"
<i>praemorsa</i>	14	Straub 1938	—	"
<i>rostrata</i>	14	Snoad unpub.	—	"
<i>succulenta</i>	14	" 1952	—	"
<i>tetraphylla</i>	14	Straub 1938	—	"
<i>triebneri</i>	14	" "	—	"
<i>bulbosa</i>	24, 48	Gulline unpub.	H	E. Australia
<i>semibarbata</i>	26	Straub 1938	H	Australia

# ECHÉANDIA $x = 8$

<i>terniflora</i>	16	Schnarf & W. 1939	H	C. America
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# SIMETHIS $x = 8$

<i>planifolia</i>	48	Fernandes 1950b	H	S.W. Eur., N. Afr.
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# CHLOROGALUM $x = 9$

<i>pomeridianum</i>	36	Cave 1949	H	California
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# ALECTORURUS $x = 10$

<i>yedoensis</i>	40	Sato 1942	H	Japan
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# ANFMARRHENA $x = 11$

<i>asphodeloides</i>	22	Sato 1942	H	N. China
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# ARTHROPODIUM $x = 11$

<i>candidum</i>	22	Hair 1942	H	New Zealand
<i>milleflorum</i>	22	W. D. Jackson unpub.	—	Australia
<i>cirrhatum</i>	44	Hair 1942	H	New Zealand
	36	Sato 1942		

# CHAMAESCILLA $x = 11$

<i>corymbosa</i>	44	W. D. Jackson unpub.	—	Australia
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DICHOPOGON (ARTHROPODIUM)  $x = 11$   
*strictus* 66 Gulline unp. H S. Australia

PARADISEA  $x = ?$

<i>liliastrum</i>	St. Bruno Lily	{ 30 Bowden 1945a		
		{ 32 Stenar 1928	H	S. Europe
		{ 48 Sato 1942		
<i>lusitana</i>	32, 64	Fernandes 1950b	—	Portugal

THYSANOTUS  $x = ?$

*patersoni* c. 80 W. D. Jackson unp. — S. Australia

# TRIBE VIII: UVULARIEAE

UVULARIA  $x = 7$

<i>grandiflora</i>	14	Anderson & W. 1934	H	E.N. America
<i>perfoliata</i>	14	" "	H	" "
<i>sessile</i>	14	" "	H	" "

OAKESIELLA (OAKESIA)  $x = 8$

*sessilifolia* 16 Sato 1942 H N. America

LITTONIA  $x = 9, 11$

<i>modesta</i>	{ 18	La Cour unp.		
	{ 22	Sato 1942	H	S. Africa

GLORIOSA  $x = 11$

<i>simplex</i>	22	E.K.J.*	HM	Mozambique
<i>rothschildiana</i>	{ 22	E.K.J.* Tjio 1948	H	Trop. Africa
	{ 66	La Cour 1951b		
<i>superba</i>	{ 22	E.K.J.* Tjio 1948	HM	Trop Asia & Afr.
	{ 88	La Cour 1951b		
<i>carsonii</i>	66	La Cour 1952	H	Trop. Africa
<i>verschurii</i>	88	" "	H	?

# TRIBE IX: POLYGONATEAE

DISPORUM  $x = 6, 8, 9, 11$

<i>maculatum</i>	12	Ownbey 1953	—	N. America
<i>sessile</i>	16	M. & S. 1935	H	Japan
<i>smilacinum</i>	16	Hasegawa 1932	—	Japan, Siberia
<i>smithii</i>	16	Jones 1951	—	W: N. America
<i>pullum</i>	16	Hasegawa 1932	H	Ind., E. Ind., Ch
<i>hookeri</i>	18	Jones 1951	H	California
<i>lanuginosum</i>	18	" "	H	E: N. America
<i>trachycarpum</i>	22	" "	H	N.W: N. Amer.

CLINTONIA  $x = 7, 8$

<i>andrewsiana</i>	28	Walker 1944	H	California
<i>umbellulata</i>	28	" "	H	N. America
<i>uniflora</i> Queen Cup	28	" "	H	"
<i>udensis (alpina)</i>	28	M. & S. 1935	H	E. Asia, Himal.
<i>borealis</i>	32	Walker 1944	H	N. America

STREPTOPUS  $x = 8$

<i>japonicus</i>	16 + 2B	M. & S. 1935	H	Sib., N. Amer.
<i>amplexifolius</i>	32	" "	H	N. Temp.
<i>streptopoides</i>	c. 54	" "	H	Japan

# MAIANTHEMUM $x = 8?, 9?$

<i>bifolium</i>	May L.	{ 30, 36, 42 42 54	Stenar 1935 L. & L. 1942 Sato 1942	H	N. Temp.
<i>dilatatum</i>		{ 36 54	Palmgren 1943 Sato 1942	—	W: N. Amer., Japan

# SMILACINA $x = 9$

<i>amplexicaulis</i>		36	Rattenbury 1948	—	W: N. America
<i>japonica</i>		36	M. & S. 1935	H	Japan
<i>sessilifolia</i>		36	Cave 1948a	—	W: N. America
<i>stellata</i>		36	Stenar 1935	H	" "

# POLYGONATUM $x = 9, 10, 11, 14$

<i>falcatum</i>		{ 18 20	Berg 1933 Sato 1942	—	Japan
<i>latifolium</i>		{ 18 20	Hasegawa 1933 Suomalainen 1947	H	Europe
<i>giganteum</i>	18, 28, 29, 30	" "	" "	H	N. America
<i>multiflorum</i>	{ 18, 24 18, 30	Eigsti 1942 Dark, M. 1939		HV	N.Temp.
Solomon's Seal	18, 20, 28	Suomalainen 1947			
<i>cobrense</i>	20	Therman 1950	—		N. America
<i>humile</i>	20	Hasegawa 1933	H		Eur., Siberia
<i>lasianthum</i>	20	" "	—		Japan
<i>maximowiczii</i>	20	M. & S. 1935	—		"
<i>maximum</i>	20	Suomalainen 1947	—		
<i>silvicolum</i>	20	Hasegawa 1933	—		"
<i>sibiricum</i>	{ 20, 21 26	Suomalainen 1947 Therman 1953	—		Himal., N. Asia
<i>japonicum</i>	Amatokoro { 20 29	Hasegawa 1933 Suomalainen 1947	HV		Japan
<i>biflorum</i>	Small S.S. 20, 40	Therman 1950	H		E. Asia
<i>pubescens</i>	20, 40	" "	—		"
<i>odoratum</i>	Solomon's Seal { 20 26-30	Suomalainen 1947 Maude 1939	HMV		Eur., N. Asia
( <i>officinale</i> )					
<i>commutatum</i>	( <i>giganteum</i> ) { 20, 40, 60 28	Therman 1950 Suomalainen 1947	—		N. America
<i>canaliculatum</i>	40	Eigsti 1942	—		E. Asia
<i>hondoense</i>	22?	M. & S. 1935	—		Japan
<i>roseum</i>	28	Therman 1953	H		Siberia
<i>verticillatum</i>	{ 27, 28 30, 84 28, 60, 86-91	Berg 1933 Dark, M. 1939 Therman 1953	H		Eur., N. Asia
<i>hookeri</i>	30	" "	H		S.W: China, Tibet
<i>kingianum</i>	64	" "	—		Burma

# DRYMOPHILA $x = 10$

<i>cyanocarpa</i>	20	W. D. Jackson unp.	—	Australia
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# DISPOROPSIS $x = 10$

<i>arisanensis</i>	40	Sato 1942	—	China
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**TRIBE X: COLCHICEAE**

<b>COLCHICUM</b>	$x = 7, 9, 10.$	$x_2 = 17, 19$			
<i>ritchii</i>		14	Feinbrun unp.	H	N. Afr., Palest.
<i>schimperii</i>		14	" "	H	Palest., Arabia
<i>hierosolym</i>		18	" "	H	Palestine
<i>bivonae</i>		36	Levan 1940a	H	Sicily, Sardinia
<i>fimbriatum</i>		36	Sato 1942	H	?
<i>sibthorpil</i>		36	" "	H	Greece
<i>luteum</i>		38	Mehra & K. 1948a	H	N. India—Turkes.
<i>autumnale</i>	Autumn Crocus	38	Takenaka 1950	HM	Europe
<i>neapolitanum</i>		38	Levan 1940a	H	S. Italy, S. France
<i>speciosum</i>		38	" "	H	E. Medit., Cauc.
<i>byzantinum</i>		40	" "	H	<i>cult</i>
<i>giganteum</i>		40	" "	H	<i>cult</i>
<i>bornmülleri</i>		42	" "	H	Asia Minor
<i>variegatum</i>	Levant A.C.	44	" "	H	S. Europe
<i>latifolium</i>		54	" "	H	Greece, Crete
<i>montanum</i>		54	" "	H	S. Europe
<i>decaisnei</i>		54	Feinbrun unp.	H	E. Medit.
<i>steveni</i>		54	" "	H	Palest., Syria
<i>tunicatum</i>		54	" "	H	Palestine
<i>lusitanicum</i>		102	de Castro 1945b	—	Portugal
<b>BULBOCODIUM</b>	$x = 11$				
<i>vernum</i>		22	Levan & S. 1947	H	Europe
<b>MERENDERA (COLCHICUM)</b>	$x = ?$				
<i>bulbocodium</i>		60	Fernandes 1950b	H	Spain, Portugal

**TRIBES XI, XII, XIII: JOHNSONIEAE, MILLIGANIEAE, DIANELLEAE**

<b>LAXMANNIA (BARTLINGIA)</b>	$x = 8$				
<i>sessiliflora</i>		16	W. D. Jackson unp.	—	Australia
<b>ASTELIA</b>	$x = 8$				
<i>velutina</i>		16	Sato 1942	—	?
<i>alpina</i>		c. 80	W. D. Jackson unp.	—	Australia
<b>DIANELLA</b>	$x = 8$				
<i>intermedia</i>		16	Hair 1942	H	New Zealand
<i>laevis</i>		16, 32	Curtis 1952	H	E. Australia
<i>coerulea</i>		16, 32, 48	" "	H	"
<i>revoluta</i>		16, 32, 48	" "	—	"
<i>tasmanica</i>	16, 64, 76, 80, 84	" "	" "	H	Tasmania
<i>ensifolia</i>		32	Sato 1942	H	Asia, Austr., Haw.
<b>STYPANDRA</b>	$x = 9$				
<i>caespitosa</i>		18	W. D. Jackson unp.	H	Australia

# TRIBE XIV: VERATREAE

## SCHOENOCAULON $x = 8$

*officinale* Cebadilla 16 de Zerpa 1951 M Mexico

## VERATRUM $x = 8$

*japonicum* 16 Sato 1942 — Japan  
*longebracteatum* 16 M. & S. 1935 — "  
*maximowiczii* 16 " " — "  
*oxysepalum (album)* 32 " " — Eur., N. Asia  
*stamineum* 32 + 2B " " — Japan  
*album* White Hellebore 32 Stenar 1932 HM Eur., N. Asia  
*nigrum* Black H. 64 Miller 1930 HM Eur., Asia Min

## ZYGADENUS $x = 8, 11$

*fremonti* 22 Miller 1930 — California  
*chloranthus* 32 " " H N. America  
*elegans* 32 " " H "

## STENANTHIUM $x = 10$

*robustum* Feather Fleece 20 Sato 1942 H E. & C. U.S.A

# TRIBE XV: ASPARAGEAE

## ASPARAGUS $x = 10$

*crispus* 20 Nagao 1938 H S. Africa  
*lucidus* 20 " " R China, Japan  
*medeoloides* Smilax A. 20 " " H S. Africa  
*myriocladus* 20 " " H Natal  
*officinalis* Asparagus 20 " " MV Eur., Siberia  
*plumosus* Fern A. 20 " " H S. Africa  
*tenuifolius* 20 " " H S. Europe  
*scandens* 20 Gardé & G. 1953 H S. Africa  
*umbellatus* 20 " " " H Canary Is.  
*sp.* 40 Nagao 1938 —  
*splendens* 60 Sato 1942  
*sprengeri* 60 Nagao 1938 H S. Africa

# TRIBE XVI: BOWIEAE

## BOWIEA $x = 10?$

*volubilis* { 20 D'Amato 1949a  
(18-23)  
21 Sato 1942 H S. Africa

# TRIBE XVII: ANGUILLAREAE

## DIPIDAX $x = 10$

*triquetrum* 20 Hair unp. H S. Africa

## ANGUILLARIA $x = 10$

*dioica* 20, 40 W. D. Jackson unp. Australia

## BAEOMETRA $x = 11$

*columellaris* 22 Miller 1930 H S. Africa

**TRIBE XVIII: TRICYRTIDAE**

TRICYRTIS (BRACHYCYRTIS)*		x = 13			
<i>macropoda</i>		26	Sinoto & K. 1932	H	Japan, China
<i>stolonifera</i>	Toad Lily & 2 spp.	26	Miller 1930	H	Formosa
<i>yatabeana</i>	& 6 spp.	26	Sato 1942	H	Japan; <i>cult</i>
<i>formosana</i>		25, 26, 52	" "	H	Formosa

**TRIBE XIX: NARTHECIEAE**

JAPONOLIRION (TOLFIELDIA)		<i>x</i> = 12			
<i>osense</i>	24	Sato 1942	—	Japan	
NARTHECIUM		<i>x</i> = 13			
<i>ossifragum</i>	Bog Asphodel	26	Wulff 1935	H	W. Europe
ALETRIS		<i>x</i> = 13			
<i>foliata</i>		52	Sato 1942	—	E. Asia
METANARTHECIUM		<i>x</i> = 13			
<i>luteo-viride</i>		52	Sato 1942	—	Japan
TOLFIELDIA		<i>x</i> = 14, 15			
<i>calyculata</i>		28	Miller 1930	H	Eur., N. Amer.
<i>pusilla (palustris)</i>		30	" "	—	N. Temp., Arctic
<i>nuda</i>		30	Sato 1942	—	Japan
<i>nutans</i>		30	M. & S. 1935	H	Japan, N. Amer. E. Siberia
<i>japonica</i>		60	" "	H	Japan
HELONIOPSIS		<i>x</i> = 17			
<i>breviscapa</i>		34	Ono 1926	H	Korea
<i>japonica</i>		34	Sato 1942	H	Japan
<i>orientalis</i>		34	Nakajima 1933	—	"
<i>pauciflora</i>		34	Sakai 1934	—	"

**TRIBE XX: HELONIADEAE**

<b>CHIONOGRAPHIS</b>		<b>x = 12</b>			
<i>japonica</i>		24	Sato 1942	H	Japan
<b>HELONIAS</b>		<b>x = 17</b>			
<i>bullata</i>	Swamp Pink	34	Miller 1930	H	E: U.S.A.

**TRIBE XXI: OPHIOPOGONEAE**

<b>LIRIOPE</b> $x = 18$					
<i>graminifolia</i> v. <i>minor</i>	36	M. & S. 1935	H	Japan	
v. <i>koreana</i>	108	Sato 1942			
<i>muscaria</i>	{ 72, 108	72 Westfall 1950	H	China, Japan	
		108 Oinuma 1949			
<b>OPHIPOGON (MONDO)</b> $x = 18$					
<i>jaburan</i> Lily Turf	36	M. & S. 1935	H	Japan	
<i>japonicus</i>	36, 72	Sato 1942	H	..	
<i>plantiscapus</i>	36, 72	Oinuma 1949			

# TRIBE XXII: PELIOSANTHEAE

PELIOSANTHES	x = 18				
<i>arisanensis</i>		36	Sato 1942	—	S.E: Asia

# TRIBE XXIII: ASPIDISTREAE

ASPIDISTRA	x = 18				
<i>lurida (elator)</i>		{ 32, 36	K. 1931, T. 1937	H	China
		36	Sato 1942		
ROHDEA (RHODEA)	x = 19				
<i>japonica</i>		{ 36?	Yamamoto, K. 1931		
		38	M. & S. 1935	H	Japan
		38	Sato 1942		

# TRIBE XXIV: CONVALLARIEAE

CONVALLARIA	x = 19				
<i>majalis</i>	Lily of the Valley	38	L. & L. 1944b	H	N. Temp.
<i>keiskii</i>		38	M. & S. 1935	H	Japan
REINECKIA	x = 19				
<i>carnea</i>		{ 38	Noguchi 1936	H	China, Japan
		42	Hosono, K. 1931		

# TRIBE XXV: HERRERIEAE

HERRERIA	x = 27				
<i>salsaparrilha</i>		54	Sato 1942	H	Brazil

## 294 TECOPHILAEACEAE

ODONTOSTOMUM	x = 10				
<i>hartwegii</i>		20	Cave 1949	—	California
CYANASTRUM	x = 11, 12				
<i>cordifolium</i>		{ 22	Sato 1942	—	Trop. Africa
		24	Nietsch 1941		
TECOPHILAEA	x = 12				
<i>cyano-crocus</i>		24	La Cour 1945 *	H	Chile

## 295 TRILLIACEAE

PARIS	x = 5				
<i>polyphylla</i>		10 + 0-1B	Darlington 1941	(G)H	Himalayas
<i>formosana</i>		10 + 2B	Gotoh & K. 1937	—	Formosa
<i>tetraphylla</i>		10	Darlington 1941	—	Japan
<i>hexaphylla</i>		10, 15	" "	—	"
<i>obovata</i>		10, 15	" "	—	"
<i>quadrifolia</i>	Herb P.	20	" "	H	Europe
<i>japonica (Kinagusa)</i>		40	" "	—	Japan
TRILLIUM	x = 5				
<i>chloropetalum</i>		10	Warmke 1937	—	California
<i>declinatum (gleasonii)</i>		10 + 3B	Gotoh 1937	—	C: U.S.A.

## TRILLIUM (cont.)

<i>decumbens</i>	10	Bailey 1951	—	N. America
<i>erythrocarpum (undulatum)</i>	10	La Cour 1951a	—	E: N. America
<i>grandiflorum</i>	10	Darlington & L.C. '40	H	" "
<i>kamtschaticum</i>	10	Haga 1937a	—	Japan, Kam.
<i>lanceifolium</i>	10	Bailey 1951	—	N. America
<i>luteum (sessile)</i>	10	La Cour 1951a	—	" "
<i>ovatum</i>	10	Warmke 1937	—	W: N. America
<i>petiolatum</i>	10	" "	—	N.W: U.S.A.
<i>pulsillum</i>	10	Baldwin <i>et al.</i> 1949	H	E: N. America
<i>recurvatum</i>	10 + 0-2B	Gotoh 1937	—	C: U.S.A.
<i>rivale</i>	10	Warmke 1937	—	Oregon, Calif.
<i>sessile</i>	10	Darlington & L.C. '40	H	E: U.S.A.
<i>stamineum</i>	10	Bailey 1951	—	N. America
<i>stylosum</i>	10	Darlington & L.C. '40	H	S.E: U.S.A.
<i>undulatum</i>	10	Wilson & B. 1941	H	E: N. America
<i>erectum</i>	<div> <div>10</div> <div>10 + 0-4B</div> <div>15 + 2-3B</div> </div>	<div>           Darlington &amp; L.C. '40            Sparrow <i>et al.</i> 1952            " "         </div>	<div>           —            H            —         </div>	<div>           E: N. America            —            —         </div>
<i>hagae</i>	15, 30	Haga 1951	—	Japan
<i>smallii (apetalon)</i>	20	" 1937a	—	"
<i>tschonoskii</i>	20	" 1937b	—	"
<i>amabile</i>	30	Amano 1944	—	"

## MEDEOLA $x = 7$

<i>virginica</i>	Ind. Cucumber	14	Stewart & B. 1942	R	S.E.: U.S.A.
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## SCOLIOPUS $x = 7$

<i>bigelovii</i>		14	Johansen 1932	—	N. America
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# 296 PONTEDERIACEAE

## EICHHORNIA $x = 8$

<i>martiana</i>		16	Bowden 1945b	H	Brazil
<i>azurea</i>		32	" "	H	"
<i>crassipes</i>	Water Hyacinth	32	Taylor 1925c	H	Trop. America

## PONTEDERIA $x = 8$

<i>cordata</i>	Pickrel Weed	16	Bowden 1945b	H	E: N. America
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## MONOCHORIA $x = 14, 26$

<i>hastataefolia</i>		28	Majumdar 1953	(V)	Trop. Asia
<i>vaginalis</i>		52	Morinaga & F. '31a	(V)	Trop. Afr. & Asia

## HETERANTHERA $x = 15$

<i>dubia</i>		30	Bowden 1945b	H	Trop. America
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# 297 SMILACACEAE

## SMILAX $x = 13, 14, 15, 16$

<i>herbacea</i>	Carrian Flower	26	Lindsay 1930	H	N. Amer., Japan
<i>glauca</i>	Cat Greenbriar	28	Jensen 1937a	HM	N. America
<i>aspera</i>		32	Carvalho 1948	H	S. Eur.—India

# SMILAX (cont.)

<i>medica</i>	Mexican S.	32	Suzuka 1950a	M	Mexico
<i>oldhami</i>		32	Jensen 1937a	M	Japan
<i>rotundifolia</i>	Greenbriar	32	Speese 1939	HMR	N. Amer., W.I.
<i>sieboldii</i>		32	Nakajima 1933	M	Japan
<i>hederacea</i>		30	1937	M	"
<i>china</i>	China Root	60		HMRT	Cochin-Ch.—Jap.

# HETEROSMILAX $x = ?$

<i>japonica</i>		62	Sato 1942	—	Japan
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## 298 RUSCACEAE

### DANAE $x = 20$

<i>racemosa</i>	Alexandria	40	Sato 1942	H	Greece—Persia
( <i>laurus</i> )	Laurel				

### RUSCUS $x = 20$

<i>aculeatus</i>	Butcher's Broom	40	Martinoli 1951	HT	Eur., S.W: Asia
<i>hypoglossum</i>		40	" "	H	S. Europe
<i>hypophyllum</i>		40	" "	H	Canary Is.—Cauc.

## 299 ALSTROEMERIACEAE

### ALSTROEMERIA $x = 8$

<i>aurantiaca</i>		16	Whyte 1929	H	Chile
<i>brasilensis</i>		16	" "	H	Brazil
<i>haemantha</i>		16	" "	H	Chile
<i>pulchella</i> ( <i>psittacina</i> )		16	" "	H	S. America
<i>ligtu</i>		16	La Cour 1945 *	H	Chile
<i>rosea</i>		16	" "	H	"
<i>campaniflora</i>		16	" "	H	Brazil
<i>chilensis</i>		16	D. Sato 1938	H	Chile
species aff. <i>ligtu</i>		32	Goodspeed 1940	—	Andes

### BOMAREA $x = 9$

<i>caldasiana</i>		18	Whyte 1929	H	Guatemala
<i>carderi</i>		18	" "	H	Peru, Colombia
<i>edulis</i>	W.I. Jer. Artichoke	18	" "	HR	Trop. America
<i>patacocensis</i>		18	" "	H	Andes, Guat.
<i>salsilla</i>		18	D. Sato 1938	R	Chile

## 302 ARACEAE

### CALLA $x = 7, 9$

<i>palustris</i>	Water Dragon	{ 36, 72 63, 69, 70	Hagerup 1941b Ehrenberg 1945	R	N. Temp.
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### AGLAONEMA $x = 8$

<i>pictum</i>		16	Gow 1908	H	Malaya
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### DIEFFENBACHIA $x = 8$

<i>picta</i>		16	Gow 1908	H	S. America
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ACORUS  $x = 9, 11, 12$

<i>calamus</i> Sweet Flag	{ 18 Dudley 1937, 18 D. 1951 24, 36, 48 Wulff 1954	HIMP	N. Temp.
<i>v. angustatus</i>	44 Kurakubo 1940		
<i>gramineus</i>	{ 18 D. 1951 22 Kurakubo 1940 24 Wulff 1940a	HM	Himal.—Japan
<i>asiaticus</i>	{ 24 Ito 1942 44 „ „	—	N.E. Asia

AMBROSINIA  $x = 11$

<i>bassii</i>	22 Vignoli 1939	H	Medit.
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POTHOS  $x = 12$

<i>scandens</i>	24 Snoad 1952	H	O.W. Tropics
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XANTHOSOMA  $x = 12, 13$

<i>violaceum</i>	24 D. 1951	H	W. Indies
<i>sagittifolium</i> Coco Yam	26 E.K.J.*	R	Trop. America
<i>helleborifolium</i>	39 Simmonds 1954	—	Venez., Brazil

COLOCASIA  $x = 12, 14$

<i>antiquorum</i> Taro Yam, ( <i>esculenta</i> ) Dashcen	{ 28 Ito 1942 36 Rao 1947b 48 D. 1951	R	India, <i>cult</i>
<i>v. nymphaefolia</i>	28 Sharma & D. 1954		
<i>v. gigantea</i>	{ 28 Kurakubo 1940 42 Nakajima 1936, 42 E.K.J.*		

MONSTERA  $x = 12, 14$

<i>deliciosa</i> Ceriman	{ 24 E.K.J.* 56 D. 1951	FH	Mexico
<i>latevaginata</i>	56 „ „	H	Trop. America

ORONTIUM  $x = 12, 14$

<i>aquaticum</i> Golden Club	{ 24 D. 1951 28 Huttleston unp.	FFoH	E: N. America
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TYPHONIUM  $x = 13$

<i>trilobatum</i>	26 Simmonds 1954	H	India, Malaya
<i>divaricatum</i>	52 Ito 1942	H	Trop. Asia

AMORPHOPHALLUS  $x = 13, 14$

<i>linumaana</i>	26 Kishimoto 1941	—	?
<i>satsumaensis</i>	26 „ „	—	?
<i>sylvaticus</i>	26 Asana & S. 1937	—	India
<i>titanum</i>	26 Tjio 1948	H	Sumatra
<i>rivieri (konjac)</i> Konjak	{ 26 Kishimoto 1941 26 Ito 1942 32 D. 1951	R	Cochinch.—Japan
<i>v. kiustana</i>	{ 26 Ito 1942 39 Tjio 1948		Japan
<i>bulbifer</i>	36 Chandler 1943	H	India
<i>campanulatus</i>	{ 26 Asana & S. 1937 28 Patel & N. 1937	HR(V)	Trop. Asia

**ARISAEMA\*  $x = 13, 14$**

<i>ambiguum</i>		26	Bowden 1945a	—	China
<i>serratum</i>		{ 26	Nakajima 1933	H	Japan
		28!	Ito 1942		
<i>japonicum</i>		28	Kishimoto 1941	H	"
<i>murrayi</i>		28	Asana, T. 1936	—	Himalayas
<i>quinatum</i>		28	Bowden 1940a	R	S.E: U.S.A.
<i>ringens</i>	& 13 spp.	28	Ito 1942	H	Japan
<i>taihokensis</i>		28	Kishimoto 1941	—	Formosa
<i>thunbergii</i>		28	Nakajima '33, Ito '42	—	Japan
<i>sazenzoo</i>		28	Kurakubo 1940	—	Japan, China
<i>limbatum</i>		{ 28	Ito 1942	—	Japan
		32!	" "		
<i>concinnum</i>		56	Bowden 1940a	R	Himalayas
<i>dracontium</i>	Dragon Root	{ 28, 56	Huttleston unp.	H	E: U.S.A.
		56	Bowden 1940a		
<i>triphyllum</i>	Indian Turnip	28, 56	Huttleston 1949	HR	E: N. America
<i>kiushianum</i>		56	Ito 1942	—	Japan
<i>ovale</i>		56	" "	—	"
<i>robustum</i>		56	" "	—	"
<i>sadoense</i>		56	" "	—	"
<i>heterophyllum</i>		c. 140	" "	—	"

**PINELLIA  $x = 13, 14$**

<i>tripartita</i>		{ 26	Kurakubo 1940	H	S. Japan
		52	Ito 1942		
<i>ternata (tuberifera)</i>		{ 28	Huttleston unp.		
		116	Ito 1942	H	Japan, China
		128	D. 1951		

**ALOCASIA  $x = 14$  (13?)**

<i>cucullata</i>		28	Ito 1942	—	India
<i>fornicata</i>		28	Sharma & D. 1954	—	"
<i>macrorrhiza</i>		{ 26	M. & S. 1935,		
		28	Kurakubo 1940,	R	O.W. Tropics
		28	Ito 1942		

**CRYPTOCORYNE  $x = 14$**

<i>ciliata</i>		28	Tjio 1948	H	India, Malaya
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**EMINIUM (HELICOPHYLLUM)  $x = 14$**

<i>crassipes</i>		28	Lotfy 1951		Palestine
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**GONATANTHUS  $x = 14$**

<i>pumilus (sarmentosus)</i>		28	Sharma & D. 1954	H	Himalayas
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**PISTIA  $x = 14$**

<i>stratiotes</i>	Water Lettuce	28	Blackburn 1933		MaM(V) Tropics
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**ARUM  $x = 14, 16$**

<i>maculatum</i>		{ 28	L. & L. 1942		Eur. (Sweden)
		56, 84	Maude 1940	(R)	(Britain)
		64	D. 1951		(France)
<i>italicum</i>		64	" "	R	Medit.

CALADIUM	x = 15	28 (30-32)	Sharma & D. 1954		
<i>bicolor</i>		30	Kurakubo 1940	H	Trop. America
		30	Simmonds 1954		
		48	Ito 1942		
SYMPLOCARPUS	x = 15				
<i>foetidus</i>	Skunk Cabbage	30	Ito 1942	H	E. N. Am., N.E. Asia
EPIPHEMNUM	x = 15				
<i>mirabile</i>	Tonga Plant	60	Ito 1942	H	Mal.—Tr. Aust.
PHILODENDRON	x = 15, 16, 17				
<i>giganteum</i>		30	Simmonds 1954	H	Trop. America
<i>houlettianum</i>		32	D. 1951	—	Guiana
<i>andeanum</i>		34	M. & S. 1935	H	Colombia
ANTHURIUM*	x = 15, 16, 22				
<i>andraeanum</i>		30	Ito 1942	H	Colombia
<i>gracile</i>	& 30 spp.	30	Gaiser 1927	H	Guiana
<i>hookeri</i>		30	Kurakubo 1940	H	W.I., Br. Guiana
<i>schzerianum</i>		30	" "	H	Guatemala
		30	Ito 1942		
		32	D. 1951		
<i>magnificum</i>		32	Haase-Bessel 1928	H	Colombia
<i>scandens</i>		c. 48	Gaiser 1927	H	Trop. America
<i>radicans</i>		c. 48	" "	H	Brazil
<i>calamus</i>		44	Kurakubo 1940	—	?
<i>crassinervium</i>		c. 60	Gaiser 1927	H	Panama, Venez.
<i>digitatum</i>		c. 60		H	W. Indies, Venez.
<i>wallisii</i>		c. 60		H	Colombia
CULCASIA	x = 16				
<i>scandens</i>		32	D. 1951	H	Trop. Africa
DRACUNCULUS	x = 16				
<i>vulgaris</i>		32	D. 1951	HM	S. Europe
SAUROMATUM	x = 16				
<i>guttatum</i>		32	D. 1951	H	N.W. India
ZAMIOCULCAS	x = 16				
<i>zamiifolia</i>		32	D. 1951	H	E: Trop. Africa
ZANTEDESCHIA	x = 16				
<i>aethiopica</i>	Arum Lily	32	Ito 1942	HMV	S. Africa
SCINDAPSUS	x = ?				
<i>pictus</i>	Silver Vine	112	D. 1951	H	Malaya, Java
ARIOPSIS	x = 20?				
<i>peltata</i>		80	D. 1951	H	Himalayas
PELTANDRA	x = 22				
<i>undulata</i>		c. 44	Duggar 1900	H	E: U.S.A.
<i>virginica</i>	Green Arrow Arum		Huttleston unp.	H	N.E. America

### 303 LEMNACEAE

#### LEMNA (SPIRODELA) $x = 10, 11$

<i>minor</i>	Duckweed	40	Blackburn 1933	H	Cosmop.
<i>polyrhiza</i>		40	" "		"
<i>trisulca</i>		44	" "		Eur., Siberia
<i>gibba</i>		64	" "		N. Hemisphere

#### WOLFFIA $x = ?$

<i>arrhiza</i>		{ c. 44-46	Lawalrée 1943	—	Temp.
		c. 50	Blackburn 1933		

### 304 SPARGANIACEAE

#### SPARGANIUM\* $x = 15$

<i>angustifolium</i>		30	L. & L. 1942	—	N. Amer., Austr
<i>friesii</i>		30	" "	—	Europe
<i>hyperboreum</i>		30	" " 1948	—	N. Europe
<i>minimum</i>	Bur Weed	30	Wulff 1938	—	Europe
<i>ramosum</i>	Bede Sedge	30	" "	T	"
<i>simplex</i>		30	Hagerup 1941b	—	"
<i>yamatense</i>	& 4 spp.	30	Harada 1947	—	Japan
<i>stenophyllum</i>		30, 45	" "	—	Manchuria

### 305 TYPHACEAE

#### TYPHA $x = 15$

<i>angustata</i>		30	Harada 1947	—	E. Medit., S.W Asia
<i>angustifolia</i>	Sm. Reed Mace	30	L. & L. 1942	HT	Am., Eur., Asia
<i>latifolia</i>	Cat-tail	30	Harada 1947	HT	N. Am., Eur., As
<i>orientalis</i>		30	" "	H	China, Japan

### 306 AMARYLLIDACEAE

#### HABRANTHUS $x = 6$

<i>robustus</i>		{ 12	D. Sato 1938,	H	Uruguay
		12	Flory 1948		
<i>andersoni</i>		{ 21	D. Sato 1938	H	Argentina
		24	Flory 1948		
<i>as texana</i>		24	" "	H	(Texas)
<i>brachyandrus</i>		24	" "	H	S. Brazil

#### ZEPHYRANTHES $x = 6, 7$ $x_3 = 19$

<i>tauberti</i>		12	D. Sato 1938	H	S. America
<i>atamasco</i>	Atamasco L.	24	Flory 1943	H	S.E. U.S.A.
<i>treatiae</i>		24	" "	H	"
<i>verecunda</i>		24	La Cour 1952	H	Mexico
<i>tubispatha</i>		25!	Flory 1943	H	W. Indies
<i>flammea</i>		14	Schnack & C. 1947	—	Peru
<i>candida</i>		38	Inariyama 1937	H	Argentina
<i>macrosiphon</i>		46, 48	Flory 1943	H	Mexico

# ZEPHYRANTHES (cont.)

<i>grandiflora (carinata)</i>	48	Coe 1954	H	C. Amer., W.I.
<i>pulchella</i>	48	Flory 1943	H	Texas
<i>simpsonii</i>	48	" "	H	Florida
<i>lindleyana</i>	c. 96	La Cour unp.	H	Mexico
<i>ajax</i>	42	Sato 1942	H	<i>cult</i>
<i>brazosensis</i>	48, 55-59	Coe 1954	—	S: U.S.A.
<i>longifolia</i>	(24) 44-50	" "	H	S: U.S.A., Mex.

# LYCORIS $x = 6, 9, 11$ (by fusion from 11)

<i>sanguinea</i>	22	Inariyama 1937	H	Japan
<i>sprengeri</i>	22	" 1944	H	"
<i>radiata</i> v. <i>pumila</i>	22	" "	H	China
<i>radiata</i> (3x)	33	" "	H	"
v. <i>alba</i>	39	D. Sato 1938	H	"
<i>albiflora</i>	17	Inariyama 1937	H	<i>cult</i>
<i>straminea</i>	16	" "	H	China
<i>aurea</i>	12, 13, 14	" "	H	China, Japan
<i>squamigera</i> (3x)	27	" "	H	Japan

# COOPERIA $x = 12$

<i>traubii</i>	Prairie Lily	24	Coe 1954	H	Texas
<i>drummondii</i>		(24), 48	" "	H	Texas, Mexico
<i>pedunculata</i>		48	Sato 1942, Coe 1953	H	" "
<i>brasiliensis</i>		69 + B	Traub 1945	—	Brazil

# GALANTHUS $c = 12$

<i>byzantinus</i>	24	La Cour 1946	H	S.E: Europe
<i>cilicicus</i>	24	" "	H	Taurus
<i>platyphyllus (latifolius)</i>	24	" "	H	Cauc., Asia M.
<i>plicatus</i>	24	Sato 1942	H	Crimea
<i>nivalis</i> Snowdrop	{ 24, 25, 28	" "	H	Europe, Cauc.
	24, 36	La Cour 1946		
<i>elwesii</i>	24, 48	Sato 1938	H	Asia Minor

# IXIOLIRION $x = 12$

<i>montanum (tataricum)</i>	24	Traub 1942	H	W. Asia, Siberia
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# LEPTOCHITON $x = 12$

<i>quitoensis</i>	24	Snoad 1952	H	Ecuador
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# UNGERNIA $x = 12$

<i>sewerzowii</i>	24	Baranov & P. 1925	—	Persia
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# LEUCOJUM $x = 7, 8, 9, 11$

<i>autumnale</i>	14	Neves 1939	H	Medit.
<i>trichophyllum</i>	14	" "	H	W. Medit.
<i>roseum</i>	16	" "	H	Corsica
<i>hiemale</i>	18	" "	H	Riviera
<i>aestivum</i>	22	" "	H	Eur., S.W: Asia
v. <i>pulchellum</i>	22	" "	H	Balearics
<i>vernium</i> Snowflake	22	" "	H	Europe

# NARCISSUS $x = 7, 10, 11$

## (i) $x = 7$

<i>asturiensis</i>	14 + 0-2B	Wylie 1952	H	C. & N. Sp. & Portugal
<i>atlanticus</i>	14	" "	(H)	Atlas
<i>bulbocodium</i>	14, 21, 28, 35, 42	Fernandes 1934	H	Sp., Port., S.W. France, N.W. Africa
Hoop Petticoat	14 + 0-4B	" 1949a		
<i>v. citrinus</i>	14 + 0-2B	Wylie 1952		
<i>genuinus</i>	14	Fernandes 1934		
<i>nivalis</i>	14	" "		
<i>obesus</i>	26!	" & N. '41		
<i>conspicuus</i>	28	" "		
<i>monophyllus foliosus</i>	28	" 1951 "		
<i>romieuxii</i>	29!	Wylie 1952		Morocco
<i>calicicola</i>	14 + 0-2B		H	Portugal
<i>cyclamineus</i>	14 + 0-1B	" "	H	N. Portugal
<i>fernandesii</i>	14	Fernandes 1951	—	Portugal
<i>gaditanus</i>	14	" 1939b	—	S.W: Sp. & Port.
<i>jonquilla</i> Jonquil	14	Nagao 1933	H	S. Sp. & Port.
<i>juncifolius</i>	14 + 1B	Fernandes 1939c	H	Spain, S. France
<i>minor</i>	14	" & F. '46	H	Pyrenees
<i>v. pumilus</i>	14	" "		
	14 + 1B	Wylie 1952		
<i>minutiflorus</i>	14	Fernandes 1939b	—	S.W: Sp. & Port.
<i>poeticus</i> Pheasant's Eye	14, 21	Nagao 1929	H	S. Europe
<i>v. radiiflorus</i>	14	Wylie 1952		E. Adriatic
<i>recurvus</i>	21	" "		<i>cult</i>
<i>pseudonarcissus</i> Daffodil	14	Fernandes & F. '46	H	W. Europe
<i>v. pallidiflorus</i>	15	Philp 1934b		
<i>hispanicus (maximus)</i>	21	" "		<i>cult</i>
<i>tortuosus</i>	21	Fernandes & F. '46		
<i>bicolor</i>	28	" " 1951 "		
<i>nobilis</i>	28	" " 1951 "		
<i>rupicola</i>	14	" 1939b	H	Spain, Portugal
<i>scaberulus</i>	14	" "		Portugal
<i>triandrus</i>	14	" 1949b	H	Sp., Port., Britt.
<i>viridiflorus</i>	28	" 1943	(H)	Gib., N.W. Afr.
<i>watieri</i>	14	" 1939b	H	Morocco

## (ii) $x = 10, 11$

<i>broussonetii</i>	22	Fernandes 1940	—	Morocco
<i>elephas</i>	20	" 1943	—	W. Medit.
<i>serotinus</i>	30	" "	—	Medit.
<i>tazetta</i> Polyanthus N.	22	" 1937b	H	"
	20-22, 30-32	Nagao 1933		Japan, <i>cult</i>
<i>v. italicus</i>	22	Maugini 1952		S. France, Cors., Italy
<i>v. aureus</i>	22	" 1953c		Medit.
<i>bertolonii</i>	20, 22	" "		Italy
<i>patulus</i>	20, 22	" "		Italy, Greece
<i>cypri</i>	30, 33	" "		E. Medit.

## (iii) HYBRID SPECIES

<i>bernardi (ps. nar. x poet.)</i>	14 + 1B	Wylie 1952	H	Pyrenees
<i>gracilis (jon. x poet.)</i>	14	Pereira 1940	H	<i>cult</i>
<i>odorus (ps. nar. x jon.)</i>	14	Fernandes 1934	H	
<i>tenuior (jon. x poet.)</i>	14	Pereira 1940	H	
<i>johnstonii (ps. nar. x triandrus)</i>	21	Wylie 1952	H	Portugal

<b>NARCISSUS (cont.)</b>					
<i>jonquilloides</i> (jon. x gad.)	21	Fernandes 1939a			S.W. Iber. Penin.
<i>intermedius</i> (jon. x taz.)	17	Nagao 1933	H		N.E. Spain (?)
<i>biflorus</i> (poet. x taz.)	17	Fernandes 1934	H		S. France (?)
	24	Nagao 1933	H		
<i>dubius</i> (junc. x taz.)	50	Fernandes 1937a	H		S. Fr., N.E. Sp.
<b>TAPEINANTHUS <math>x = (7) 14</math></b>					
<i>humilis</i>	28	Fernandes & F. '45	—		S.E. Spain, Mor.
<b>CRYPTOSTEPHANUS <math>x = (7) 14</math></b>					
<i>vansonii</i>	28	Gouws 1949			S. Africa
<b>ANOIGANTHUS <math>x = 8</math></b>					
<i>breviflorus</i>	16	Gouws 1949	H		S. Africa
<b>VALLOTA <math>x = 8</math></b>					
<i>speciosa</i> (purpurea)	16	Sato 1942	H		S. Africa
<b>HAEMANTHUS <math>x = 8, 9</math></b>					
<i>albiflos</i>	16	Sato 1938	H		S. Africa
	16 + 2B	" "	H		cult
<i>coccineus</i>	16	" "	H		S. Africa
<i>hirsutus</i>	16	Gouws 1949	—		"
<i>nelsonii</i>	16	" "	H		Transvaal
<i>katherinae</i>	18	Snoad 1952	H		Natal
<i>magnificus</i>	18	Gouws 1949	H		"
<i>multiflorus</i>	18	Snoad 1952	H		Trop. Africa
<b>CYRTANTHUS <math>x = 8, 11</math></b>					
<i>parviflorus</i>	16	Taylor 1925a	H		S. Africa
<i>tuckii</i>	16	Gouws 1949	H		"
<i>obliquus</i>	22	D. Sato 1938	H		Cape Prov.
<b>HIPPEASTRUM <math>x = 9, 11</math></b>					
<i>advenum</i>	18	Ficker 1951	H		Chile
<i>chilense</i>	18	" "	H		"
<i>pratense</i>	18	Sato 1942	H		"
<i>aulicum</i>	22	Snoad 1952	H		Brazil, Paraguay
<i>calyptratum</i>	22	Neto 1948	H		Brazil
<i>equestre</i>	22	Snoad 1952	H		Trop. America
<i>solandriflorum</i>	22	Baldwin & S. 1947a	H		Trop. S. Amer.
<i>stylosum</i>	22	Neto 1948	H		Brazil, Guiana
<i>rutilum</i> v. <i>fulgidum</i>	22	Snoad 1952	H		Brazil, Ven.
	44	Sato 1942	H		
<i>candidum</i>	33	Snoad 1952	H		Argentine
<i>reginae</i>	33	Neto 1948	H		Brazil
<i>ruiri</i>	33	Snoad 1952	H		cult
<i>vittatum</i>	43	" unp.	H		Peru
	44	Inariyama 1937	H		
<i>hybridum</i>	44	Inariyama 1937	H		cult
<i>blumenavia</i> (as <i>Griffinia</i> )	77	Sato 1938	H		Brazil

<b>MIERSIA</b> $x = 10$ (11)					
<i>chilensis</i>	20, 21	Cave & B. 1943	H	Chile	
<b>AMARYLLIS</b> $x = 11$					
<i>belladonna</i> Cape Plant	22	Sato 1938,	H	S. Africa	
( <i>Brunsvigia rosea</i> )	22	Gouws 1949			
<b>AMMOCHARIS</b> $x = 11$					
<i>coranica</i>	22	Gouws 1949	—	S. Africa	
<b>BOÖPHONE</b> $x = 11$					
<i>disticha</i>	22	Gouws 1949	H	S. Africa	
<i>guttata</i>	22	" "	—	"	
<b>BRUNSVIGIA</b> $x = 11$					
<i>couperi</i>	22	Gouws 1949	—	S. Africa	
<b>CLIVIA</b> $x = 11$					
<i>caulescens</i>	22	Gouws 1949	—	S. Africa	
<i>miniata</i>	22	Inariyama 1937	H	Natal	
<i>nobilis</i>	22	" "	H	S. Africa	
<i>cyrtanthiflora</i>	18?	Wittlake 1940	H	<i>cult</i>	
( <i>miniata</i> $\times$ <i>nobilis</i> )					
<b>CRINUM</b> $x = 11$					
<i>abyssinicum</i>	22	Dolcher 1950	H	Abyssinia	
<i>asiaticum</i>	22	Inariyama 1937	H	Tr op. Asia	
<i>buphanoides</i>	22	Gouws 1949	—	S. Africa	
<i>crispum</i>	22	" "	H	Transvaal	
<i>forbesianum</i>	22	" "	H	Delagoa Bay	
<i>gigas</i>	22	Inariyama 1937	H	Bonin Is.	
<i>latifolium</i>	22	" "	H	India	
<i>lineare</i>	22	D. Sato 1938	H	S. Africa	
<i>longifolium (capense)</i>	{ 22 + 2B	22 Dolcher 1950	H	.	
		22 Inariyama 1937	H		
<i>moorei</i>	22	D. Sato 1938	H	"	
<i>grandiflorum</i>	22	Sato 1942	H	<i>cult</i>	
<i>octobris</i>	22	" "	H	"	
<i>powellii</i>	22	Dolcher 1950	H	"	
<i>ratrayi</i>	22	D. Sato 1938	H	Trop. Africa	
<i>yemense</i>	22	Snodad 1952	H	Arabia	
<i>macrantherum</i> (3x)	33	D. Sato 1938	—	Melanesia	
<i>bulbispermum</i>	72	Gouws 1949	H	S. Africa	
<b>CYBISTETES</b> $x = 11$					
<i>longifolia</i>	22	Gouws 1949	H	S. Africa	
<b>LAPEIDRA</b> $x = 11$					
<i>martinezii</i>	22	Fernandes 1950a	—	S.E: Spain	
<b>PANCRATIUM</b> $x = 11$					
<i>maritimum</i>	22	Fernandes 1933	H	Medit.	
<i>illyricum</i>	{ 22 44	22 Brumfield 1941	H	S. Europe	
		44 Sato 1938			

STERNBERGIA  $x = 11, 12?$

<i>lutea</i>	{ 22, 33	Inariyama 1937	H	Medit.
	24	Battaglia 1949b		
		Amico 1947		

NERINE  $x = 11, 12$

<i>angustifolia</i>	22	Janaki Ammal 1951b	H	S. Africa
<i>appendiculata</i>	22	" " "	H	Natal
<i>duparquetiana</i>	22	Gouws 1949	—	S. Africa
<i>falcata</i>	22	" "	—	"
<i>frithii</i>	22	" "	—	"
<i>laticoma</i>	22	" "	—	"
<i>lucida</i>	22	Janaki Ammal 1951b	—	"
<i>marginata</i>	22	" " "	—	"
<i>bowdenii</i>	22, 24	" " "	H	Cape Pen.
<i>filifolia</i>	22, 24	" " "	H	S. Africa
<i>masanorum</i>	{ 22	" " "	—	Kalahari
	24	Gouws 1949		
<i>curvifolia</i>	22, 24, 33	Janaki Ammal 1951b	H	Cape Pen.
<i>sarniensis</i> Guernsey Lily	22, 24, 33	" " "	H	"
<i>flexuosa</i>	22, 33	" " "	H	Transvaal
<i>humilis</i>	22, 33	" " "	H	Table Mt.
<i>pudica</i>	22, 33	" " "	H	<i>cult</i>
<i>undulata</i>	22, 33	" " "	H	S. Africa
<i>moorei</i>	33	" " "	H	Cape Prov.

Garden forms	22-26, 28, 33, 36	Janaki Ammal & B.	H	<i>cult</i>
	44	1951		

HEMEROCALLIS\*  $x = 11$

<i>flava</i> Common Day Lily	22	Dark 1932b	H	Eur., T. Asia
& 3 spp.				
<i>koreana</i>	22	Takenaka 1952	—	Korea
<i>forrestii</i> & 7 spp.	22	Stout 1932	H	China
<i>fulva</i>			H	Eur., T. Asia
<i>v. longituba</i>	22	Sato 1942		
<i>v. Kwanso</i>	33	" "		
	36?	Suzuka 1950a		
<i>as disticha</i>	22, 33	Takenaka 1952		

HESPEROCALLIS  $x = 12$

<i>undulata</i>	48	Cave 1948b	H	Colo., Ariz.
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LEUCOCRINUM  $x = 14$

<i>montanum</i>	28	Cave 1948b	H	W: U.S.A.
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ELISAENA  $x = 23$

<i>longipetala</i>	46	Snoad 1952	H	Peru
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HYMENOCALLIS  $x = 23$

<i>amancaes</i>	46	Snoad 1955	H	Chile, Peru
<i>littoralis</i>	46	D. Sato 1938	H	S. America
<i>speciosa</i> Spider Lily	{ 46	Sato 1938		
	90-100	Heitz 1926	H	W. Indies
<i>lacera</i>	69	D. Sato 1938	H	N. America
<i>macrostephana</i>	46, 92	Snoad 1955	H	S. America
<i>senegambica</i>	69	" "	H	Guinea
<i>calathinum</i>	86-23!	" 1955	H	S. America

**PAMIANTHE**  $x = 23$

*peruviana* 46 La Cour unp. H Peru

**PHAEDRANASSA**  $x = 23$

*carmioli* 46 Snoad 1952 H Costa Rica

**EUCHARIS**  $x = ?$

*grandiflora* Amazon L. 68 Sato 1938 H Colombia

**SPREKELIA**  $x = ?$

*formosissima* { c. 117 Sato 1938 H Mexico  
c. 121 Snoad unp.

## 307 IRIDACEAE

**CROCUS**  $x = 3, 4, 5, 6, 7$ , etc.

$x = 3, 4$

<i>balansae</i>	6	Mather 1932	H	S.W. Asia
<i>candidus</i> v. <i>subflavus</i>	6	Karasawa 1943	H	Asia Minor
<i>graveolens</i>	6	Mather 1932	H	"
<i>hyemalis</i>	6 + 4B	" "	H	Syria, Palestine
<i>olivieri</i>	6	" "	H	S.E. Europe
<i>suterianus</i> ( <i>aucheri</i> )	6	" "	H	Asia Minor
<i>biflorus</i> Cloth-of-Silver	7, 8, 15, 20	Karasawa 1943	H	Eur., Asia Min.
<i>flavus</i> ( <i>aureus</i> )	8	Mather 1932	H	S.E. Eur., As. M.
<i>danfordiae</i>	8	" "	H	Asia Minor
<i>kotschyanus</i> ( <i>zonatus</i> )	8	" "	H	"
<i>aerius</i>	8, 14	" "	H	"
<i>chrysanthus</i>	8, 9, 10	" "	H	Greece, Asia M.
<i>etruscus</i>	{ 8	Karasawa 1943	H	Italy
	{ 11	Mather 1932		
<i>stellaris</i>	8, 11	" "	H	<i>cult</i>
<i>vernus</i>	8, 16-32	Karasawa 1943	H	Eur., <i>cult</i>

$x = 5-8$

<i>hueffelianus</i>	{ 9!	Karasawa 1943	H	Hungary
	{ 14	Mather 1932		
<i>ancyrensis</i>	10	Karasawa 1950	H	Asia Minor
<i>ochroleucus</i>	10	Mather 1932	H	Syria, Palestine
<i>reticulatus</i>	10	" "	H	Caucasus—Italy
<i>cancellatus</i>	10, 16	Karasawa 1943	HV	Greece—Persia
<i>pulchellus</i>	12	Mather 1932	H	Greece, Asia M.
<i>angustifolius</i> Cloth-of-Gold	12	Karasawa 1950	H	Crimea, Cauc.
( <i>susianus</i> ) C.				
<i>speciosus</i>	{ 12, 14, 16	" 1940	H	Asia M., S. Russ
	{ 12, 18	Mather 1932		Persia
<i>sativus</i> Saffron	{ 14, 15	" "	HMSp	Italy—Kurdistan
	{ 16, 40	Karasawa 1940		<i>cult</i>
	{ 24	Sugiura 1931		
<i>sieheanus</i>	16	Karasawa 1943	H	Asia Minor
<i>tomasinianus</i>	16	Mather 1932	H	Dalmatia
<i>hadriaticus</i>	{ 16	" "	H	Greece, Albania
	{ 24	Karasawa 1943		

$x = 10-15$

<i>fleischeri</i>	20	Mather 1932	H	Asia Minor
<i>karduchorum</i>	20	" "	—	Kurdistan

# CROCUS (cont.)

<i>korolkowii</i>	20	Mather 1932	H	Turkestan
<i>leichtlinii</i>	20	" "	H	Asia Minor
<i>asturicus</i>	22	" "	H	Spain
<i>corsicus</i>	22	" "	H	Corsica
<i>dalmaticus</i>	22	Karasawa 1943	H	Dalmatia
<i>medius</i>	22	" "	H	Riviera
<i>steberi</i>	22	Mather 1932	H	Greece
<i>boryi</i> v. <i>marathoniseus</i>	24	" "	H	"
<i>malyi</i>	24	" "	H	Dalmatia
<i>minimus</i>	24	Karasawa 1943	H	Cors., Sardinia
<i>salzmannii</i>	24	Mather 1932	H	Spain, Morocco
<i>byzantinus</i> ( <i>iridiflorus</i> )	26	" "	H	E. Europe
<i>imperati</i>	26	" "	H	Italy
<i>laevigatus</i> v. <i>fontenayi</i>	26	" "	H	Greece
<i>niveus</i>	26	Karasawa 1932	H	"
<i>versicolor</i>	26	Mather 1932	H	Eur. Alps
<i>longiflorus</i> ( <i>odorus</i> )	28	Karasawa 1943	H	S. Italy, Sicily
<i>pestalozzae</i>	28	" "	H	Greece, Turkey
<i>tournefortii</i>	30	Mather 1932	H	Greece
<i>nudiflorus</i>	c. 46	" "	H	S.W. Europe

## CYPELLA $x = 5, 7$

<i>purgans</i>	10	Sakai 1952	—	Brazil
<i>herbertii</i>	14	" "	H	Argentina
	{ 14 + 0-1B	Covas & S. 1947		

## BABIANA $x = 6? 7?$

<i>stricta</i>	{ 12	Brittingham 1934	H	S Africa
	14	Sugiura 1931		

## NEOMARICA (MARICA) $x = 7$

<i>northiana</i>	14	M. & S. 1935	H	Brazil
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## SPARAXIS $x = 7?, 10?$

<i>tricolor</i>	{ 14	Sugiura 1931	H	S. Africa
	20	Nakajima 1936		

## IRIS\* $x = 7 \ 8 \ 9, 10, 12$ , etc.

### (i) BULBOUS GROUP

#### S. 1. XIPHIUM $x = 7, 8, 9. \ x_2 = 15, 17, 25$

<i>tingitana</i>	{ 28	Simonet 1934a	H	Morocco
	42	" "	H	cult
<i>xiphoides</i>	42	" "	H	Pyrenees
<i>filifolia</i>	32	" 1952	H	S. Spain, N. Afr
<i>juncea</i>	{ 32	" 1934a	H	Sicily, N. Africa
as <i>lusitanica</i>	34	" "		
<i>xiphium</i>	{ 34	" "	H	W. Medit.
v. <i>battandieri</i>	36	" "	H	N. Africa
<i>boissieri</i>	36	" 1952	H	Portugal
sp. 119	30	" "	—	Tangiers
sp. 117	50	" "	—	"

#### S. 2. RETICULATA $x = 8, 10, 14$

<i>histrioides</i>	16, 17	Simonet 1934a	H	Asia Minor
<i>winogradowii</i>	16	" "	H	Caucasus

# IRIS (cont.)

<i>bakeriana</i>	20	Simonet 1952	H	Asia M., Mesop.
<i>histris</i>	20	" 1934a	H	Asia Minor
<i>vartanii</i>	20	" "	H	Palestine
<i>reticulata</i>	20	" "	H	Caucasus
<i>danfordiae</i>	28	" "	H	Asia Minor

## S. 3. JUNO $x = 9, 11, 12, 13, x_2 = 25$

<i>caucasica</i>	18	Simonet 1934a	H	Cauc., Asia Min., Persia
<i>willmottiana</i> v. <i>alba</i>	21	" 1952	H	Tashkent
<i>bucharica</i>	22	" 1934a	H	Bokhara
<i>orchioides</i>	22	" "	H	"
<i>sindjarensis</i>	22	" "	H	Mesopotamia
<i>alata</i>	24	" "	H	W. Medit.
<i>warleyensis</i>	24	" "	H	Bokhara
<i>persica</i>	26	" "	H	Asia M.—Persia
<i>vicaria</i>	26	" 1952	H	C. Asia
<i>graeberiana</i>	50	" "	H	Turkestan

## S. 4. NEPALENSIS $x = 12, 14$

<i>decora</i> ( <i>nepalensis</i> )	24	La Coui unpub.	H	N.W. Him.—Yun
<i>colletii</i>	28	Simonet 1934a	H	Burma—Yunnan

### (ii) RHIZOMATOUS GROUP

## S. 5. APOGON $x = 7, 8, 10, 11, 12, \text{etc.}$

$x = 7$

<i>orientalis</i>	28	Simonet 1934a	H	Manch., Kor., Jap
<i>sibirica</i>	28	" "	H	Eur., W. Russia
<i>tenuis</i>	28	" "	H	Oregon
<i>fulva</i>	42	" "	H	S.E. U.S.A.
<i>prismatica</i>	42	" "	H	E. N. America
<i>verna</i>	42	" "	H	S. U.S.A.

$x = 8$

<i>sintenesii</i>	16, 32	Simonet 1934a	H	Italy—Asia M.
<i>rossii</i>	32	Kurita 1940	H	Korea, China

$x = 9$

<i>kerneriana</i>	18	La Cour unpub.	H	Asia Minor
<i>humilis</i>	72	Simonet 1934a	H	Trans., Caucas., Alt

$x = 10$

<i>urumovii</i>	20	" "	H	Europe
<i>aurea</i>	40	" "	H	Kashmir
<i>bracteata</i>	40	Foster 1937	H	Oregon
<i>bulleyana</i>	40	Simonet 1934a	H	W. China
<i>chrysographes</i>	40	" "	H	"
<i>delavayi</i>	40	" "	H	"
<i>douglasiana</i> ( <i>watsoniana</i> )	40	" "	H	California
<i>foetidissima</i>	40	" "	HM	Eur., N. Africa
<i>forrestii</i>	40	" "	H	W. China
<i>gormanii</i>	40	" "	H	Oregon
<i>hartwegii</i> v. <i>australis</i>	40	Lenz 1950	H	S. California
<i>innominata</i>	40	" unpub.	H	Oregon
<i>munzii</i>	40	" 1950	—	California
<i>ochroleuca</i>	40	Simonet 1934a	H	W. Asia Minor
<i>pabularia</i> ( <i>ensata</i> )	40	" "	H	C. Asia—Korea
<i>purdyi</i>	40	Foster 1937	H	Ore., N. Calif.

# IRIS (cont.)

<i>tenax</i>	40	Simonet 1934a	H	Wash., Oregon
<i>wilsoni</i>	40	" "	H	W. China
<i>x</i> = 11				
<i>minuta</i>	22	Simonet 1934a	H	Japan
<i>spuria</i>	22	Westergaard 1938	H	Europe
<i>chrysophaeancia</i>	43	Randolph 1934	H	S.E: U.S.A.
<i>brevicaulis</i> ( <i>foliosa</i> )	44	Simonet 1934a	H	"
<i>carthaliniae</i>	44	" "	H	Caucasus
<i>halophila</i>	44	" "	H	C. Asia
<i>hexagona</i>	44	Snoad 1952	H	S.E: U.S.A.
<i>lilacina</i>	44	La Cour unpub.	H	Persia?
<i>missouriensis</i>	88	Snoad 1952	H	S.E: U.S.A.
<i>x</i> = 12, 13, 15, 16, 17, 19				
<i>aschersoni</i>	24	Simonet 1952	H	Cilicia
<i>grant-duffii</i>	24	" 1934a	H	Palestine
<i>kaempferi</i>	24	" "	H	Manch.—Japan
<i>melanostica</i>	24	" 1952	H	Jordan
<i>pseudacorus</i> Yellow F.	{ 24, 30, 34	L. & L. 1942	(B)P	Eur., Cauc., Sib.
	32, 34	Ehrenberg 1945		
<i>laevigata</i> Blue Flag	32	Kazao 1929	HM	E. & N. Asia
<i>unguicularis</i> ( <i>stylosa</i> )	38	Simonet 1934a	H	E. Medit., Algeria
<i>v. lazica</i>	32	" 1952	H	E. Asia Minor
<i>v. speciosa</i>	{ 36	La Cour 1952	H	E. Medit.
	38	Simonet 1952		
<i>v. alba</i>	48	La Cour 1952	H	"
<i>graminea</i>	34	Simonet 1934a	H	S. Eur., Cauc.
<i>maritima</i>	38	" "	H	W. Eur., N. Afr.
<i>setosa</i>	38	" "	HR	N. Asia, Alaska, Lab., E: U.S.A.
<i>virginica</i>	54, 56, 70	Anderson 1936	H	E: N. America
<i>ruthenica</i>	c. 84	Simonet 1934a	H	Transylv.—Korea
<i>longipetala</i>	c. 86	" "	H	California
<i>montana</i>	c. 86	" "	H	W: U.S.A.
<i>versicolor</i> Blue Flag	72, 84, 105	" "	HM	E: N. America

## S. 6. POGONIRIS *x* = 8, 10, 11, 12, 13

*x* = 8

<i>attica</i>	16	Simonet 1934a	H	Greece, Cauc.
<i>pseudopumila</i>	16	" 1952	H	S. Italy, Sicily
<i>melliata</i>	24	" 1934a	H	Greece, Turkey
<i>reichenbachii</i>	{ 24, 32	" "	H	Balkans
	40	Randolph 1935		
<i>as balkana</i>	24, 48	Simonet 1934a		
<i>pumila</i>	32, 36	" "	H	E. Europe

*x* = 10 (Dwarf Bearded Irises)

<i>chamaeiris</i> ( <i>olbiensis</i> )	40	Simonet 1934a	H	S. Europe
<i>subbiflora</i> ( <i>biflora</i> )	40	" "	H	Port., Sp., N. Afr.

*x* = 11 (or 10 + 12)

<i>flavissima</i>	22	Simonet 1934a	H	Hungary—Mong.
<i>albicans</i>	44	" "	H	S. Eur., Asia M., Yemen
<i>biliottii</i>	44	" 1952	H	N.E. Asia Min.
<i>kashmiriana</i>	44	" 1934a	H	Himalayas
<i>kochii</i>	44	" "	H	<i>cult</i>
<i>germanica</i> Orris Root	44	" "	HP	Europe, <i>cult</i>

# IRIS (cont.)

## germanica

<i>as florentina</i>	24	Simonet 1934a
	28	Sakai 1952
	48	Kazao 1929
<i>as amas (macrantha)</i>	48	Simonet 1934a

## x = 12 (Tall Bearded Irises)

<i>alberti</i>	24	Simonet 1934a	H	Turkestan
<i>imbricata</i>	24	" "	HP	Transcauc., N. Persia
<i>pallida (cengialtii)</i>	24	" "	HP	Tyrol
<i>variegata</i>	24	" "	H	Balkans, <i>cult</i>
<i>aphylla</i>	24, 48	" "	H	E. Eur., Cauc., Siberia
<i>belouini</i>	48	" 1952	—	Morocco
<i>cypriana</i>	48	" 1934a	H	Cyprus
<i>junonia</i>	48	" 1952	H	Asia Minor
<i>mesopotamica</i>	48	" 1934a	H	Syria?
<i>trojana</i>	48	" "	H	Asia Minor
Bearded Irises	145 vars. 23 " 247 " 3 "	24 (25) 36 (35) 48 (46-53) 60 (63)	} Randolph 1944	H <i>cult</i>

## x = 13

<i>bloudowii</i>	26	Simonet 1952	H	C. Asia
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## S. 7. PARDANTHOPSIS x = 8

<i>dichotoma</i>	32	Simonet 1934a	H	Sib.—N. China
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## S. 8. ONCOCYCLUS x = 10

<i>acutiloba</i>	20	Simonet 1934a	H	Transcauc.
<i>antilibanotica</i>	20	" 1952	H	Anti-Lebanon
<i>atrofusca</i>	20	" "	H	Palestine
<i>atropurpurea</i>	20	" 1934a	H	Syria
<i>auranitica</i> & 10 spp.	20	" 1952	H	"
<i>ewbankiana</i>	20	" 1934a	H	Asia M., N. Pers.
<i>iberica</i>	20	" "	H	Cauc., N. Persia
<i>barnumiae (mariae)</i>	20	" "	H	S. Palest., Sinai
<i>paradoxa</i>	20	" "	H	Transcauc., N. Persia
<i>sari</i>	20, 21	" "	H	Asia Minor
<i>sofarana</i>	20	" "	H	Lebanon
<i>susiana</i>	20	" "	H	Persia
<i>urmiensis</i>	20	" "	H	Asia Minor

## S. 9. REGELIA x = 11

<i>korolkowii</i>	22, 33, 44	Simonet 1934a	H	Turkestan
<i>hoogiana</i>	33, 44	" "	H	Kashmir, W. Tib.
<i>stolonifera (leichtlinii, vaga)</i>	44	" "	H	Bokhara, Turkest

## S. 10. PSEUDO-REGELIA x = 11?, 12?

<i>kumaonensis</i>	{ 22 24	Simonet 1952 La Cour unpub.	H	Himalayas
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## S. 11. EVANSIA x = 13, 14, 15, 16, 17, 18, 22

<i>tectorum</i> Wall Iris	{ 24 28	Sakai 1952 Simonet 1934a	HR	S.W. China, N. Burma
<i>milesii</i>	26	" "	H	Himalayas
<i>formosana</i>	28	Yasui 1939	H	Formosa

# IRIS (cont.)

<i>confusa</i> (as <i>wattii</i> )	{ 30	Simonet 1934a	H	W. China
	30	Snoad 1952		
<i>cristata</i> Crested Iris	32	Simonet 1934a	HSp	E: U.S.A.
<i>v. lacustris</i>	42	" "	H	N. Am. (Gr. Lak.)
<i>japonica</i>	{ 34, 54	Kazao 1929	HR	China, Japan ( <i>cult</i> )
	36, 54	Yasui 1939		
<i>gracilipes</i>	36	Simonet 1934a	H	Japan
<i>speculatrix</i>	44	Snoad 1952	H	Hong Kong

# HELIXYRA (IRIS) $x = 12$

<i>sisyrinchium</i> Spanish Nut	24	Simonet 1934a	HSp	Medit.—N.W. Ind.
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# HERMODACTYLUS (IRIS) $x = 10$

<i>tuberosus</i> Snake's Head Iris	20	Simonet 1928a	H	Levant
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# BELAMCANDA $x = 8$

<i>chinensis</i> Blackberry Lily	32	Nakajima 1936	H	China, Jap. N. Ind.
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# CHASMANTHE (ANTHOLYZA) $x = 8$

<i>aethiopica</i>	32	Nakajima 1936	H	S. Africa
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# LAPEYROUSIA $x = 8$

<i>cruenta</i>	16	Brittingham 1934	H	S. Afr. (Cape)
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# SISYRINCHIUM $x = 8, 9$

sp.	16	Bowden 1945a	—	Chile
<i>labidum</i>	32	" "		W. Indies
<i>bellum</i>	32	" "	H	California
<i>montanum</i>	32, c. 96	Bøcher & L. 1950	—	N. America
sp.	64	Bowden 1945a	—	Chile
<i>angustifolium</i>	96	" "	H	N. America
<i>iridifolium</i>	18	" "	H	Brazil—Chile
<i>macrocarpum</i>	18	Covas & S. 1946	—	Argentina
<i>striatum</i>	18	Vilmorin & S. 1927b	H	Chile
<i>californicum</i>	{ 34	Maude 1940	H	California
	36	Bowden 1945a		
<i>brachypus</i>	36	" "	H	"
sp.	90	" "		

# WATSONIA $x = 9$

<i>iridifolia</i>	18	Nakajima 1936	H	S. Africa
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# DIERAMA $x = 10$

<i>pendulum</i>	20	Vilmorin & S. 1927b	H	Trop. Africa
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# IXIA $x = 10$

<i>crateroides</i>	20	Brittingham 1934	H	S. Africa
<i>viridiflora</i>	20	Collins unpub.	H	"
<i>maculata</i>	30	Nakajima 1936	H	"
<i>hybrida</i>	40	Brittingham 1934	H	<i>cult</i>
<i>speciosa</i> ( <i>Gl. coccinea</i> )	60	Bamford 1935	H	S. Africa

# TRITONIA $x = 10$

<i>crocata</i>	20	Brittingham 1934	H	S. Africa
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**MORAEA**  $x = 10, 14$

<i>iridioides</i>	{ 20	Sakai 1952	H	S. Africa
	40	Snoad unp.		
<i>ramosa</i>	20	Sakai 1952	H	"
<i>edulis</i>	28	" "	H	"

**CROCOSMIA** 11

<i>pottsii</i>	22	Nakajima 1936	H	S. Africa
<i>crococsmiiflora</i> M'bretia	{ 22, 33, 44	Brittingham 1934	H	<i>cult</i>
( <i>T. aurea</i> $\times$ <i>C. pottsii</i> )	{ 22-24, 33	Meurman & S. 1946		

**FREESIA**  $x = 11$

<i>refracta</i>	22	Brittingham 1934	H	S. Africa
v. <i>leichtlinii</i>	22	La Cour 1945 *		
<i>hybrida</i>	22, 33, 44	Lawrence 1945 *	H	<i>cult</i>

**HOMERIA**  $x = 12$

<i>collina</i>	24	Sakai 1952	H	S. Africa
<i>elegans</i>	36	Brittingham 1934	H	"

**CURTONIS (ANTHOLYZA)**  $x = 13$

<i>paniculatus</i>	26	Brittingham 1934	H	S. Africa
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**TIGRIDIA** \*  $x = 13?, 14?$

<i>pavonia</i> Tiger Flower	26	Brittingham 1934	H	Mexico
2 vars.	28	Sakai 1952		

**GLADIOLUS** \*  $x = 15$

(i) <i>alatus (namaquensis)</i>	30	Bamford 1935	H	S. Africa
<i>permeabilis</i>	30	" "	H	"
<i>formosus</i>	45	" "	H	<i>cult</i>
(ii) <i>cardinalis</i>	30	" "	H	S. Africa
<i>carmineus</i>	30	" "	H	"
<i>splendens</i>	30	" "	H	"
(iii) <i>blandus</i> & 6 spp.	30	" "	H	"
<i>papilio</i>	75	" "	H	"
(iv) <i>byzantinus</i>	{ 60	Mensinkai 1939b	H	Medit.
	90	Bamford 1935		
<i>illyricus</i>	{ 60	Fernandes 1950b	H	"
	90	Bamford 1941		
<i>atroviolaceus</i>	90	" 1935	H	Syria, Persia
<i>communis</i>	90, 180	" 1941	H	Medit.
<i>segetum</i>	120	" 1935	H	"
(v) <i>angustus</i> & 9 spp.	30	" 1935	H	S. Africa
(vi) <i>saundersii</i>	30, 45	" "	H	"
<i>platyphyllus</i>	60	" "	H	"
<i>primulinus</i>	60	" "	H	"
<i>quartinianus</i>	75	" "	H	Abyss., <i>cult</i>
<i>dracocephalus</i>	{ 75, 90	" "	H	Natal
	80	Mensinkai 1939b		
<i>psittacinus</i>	75, 90	Bamford 1935	H	S.E. Africa
<i>colvillei</i>	30, 45	" "	H	<i>cult</i>
<i>nanus</i>	30, 45, 60	" "	H	"

<b>HOMOGLOSSUM (GLADIOLUS)</b>	<b><i>x</i> = 15</b>			
<i>watsonius</i>	30	Bamford 1941	H	S. Africa
<b>ROMULEA</b>	<b><i>x</i> 17</b>			
<i>bulbocodium</i>	34	Fernandes <i>et al.</i> '48	H	W. Medit.
<i>parviflora</i>	c. 60	M. & S. 1935	H	S. Africa

## Group IV

### DIOSCOREALES

308-311

H

### AGAVALES

312-313

HS

### PALMALES

314

HST

### PANDANALES

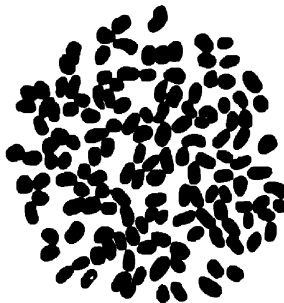
315

ST

### CYCLANTHALES

316

H



*Dioscorea batatas*



## 310 ROXBURGHACEAE

STEMONA  $x = 7$

*japonica*

14 Suzuka & K. 1949 MR

Japan

## 311 DIOSCOREACEAE

DIOSCOREA  $x = 10$

<i>caucasia</i>		20	B. W. Smith 1937	—	Caucasia
<i>quinqueloba</i>	Japanese Yam	20	" "	R	Japan
<i>gracillima</i>		20	Nakajima 1933	—	"
<i>tokoro</i>		20	" "	—	"
<i>japonica</i>		40	" "	—	"
<i>discolor</i>		40	" "	H	S. America
<i>macroura</i>		40	B. W. Smith 1937	—	Trop. Africa
<i>alata</i>	Lisbon or White Y.	40	Simmonds 1954	R	Trop. Asia
		c. 81	Nakajima 1936		
<i>sativa</i>	Yam	60	" "	R	S.E. Asia, <i>cult</i>
<i>villosa</i>		60	B. W. Smith 1937	—	N. America
<i>reticulata</i>		61	" "	—	Chile
<i>fargesii</i>		64	" "	—	China
<i>bulbifera</i>	Air Yam	80	Nakajima 1936	HR	Trop. Asia
<i>cayennensis</i>	Attoto Yam	c. 140	B. W. Smith 1937	R	Guiana, Brazil
<i>oppositifolia</i>	E. Indies Y.	c. 140	" "	R	E. Indies
<i>batatas</i>	Chinese Yam	c. 144	" "	R	China, <i>cult</i>
<i>pentaphylla</i>		c. 144	" "	(R)V	Trop. Asia

BORDEREA (DIOSCOREA)  $x = 12$

<i>chouardii</i>	24	Heslot 1953	—	Pyrenees
<i>pyrenaica</i>	24	" "		

TAMUS  $x = 12$

<i>communis</i>	Black Bryony	48	Meurman 1925	HM	Eur., Pers., N. Afr.
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## 312 XANTHORRHOACEAE

XANTHORRHOEA  $x = 11$

<i>hastile</i>	Grass Tree	22	J. T. Waterhouse unp. T		E. Australia
<i>media</i>		22	" "	—	" "
<i>preissii</i>		22	" "	—	W. Australia

## 313 AGAVACEAE

PHORMIUM  $x = 16$

<i>tenax</i>	N.Z. Flax	32	Sato 1932	HT	New Zealand
<i>colensoi</i>	Mtn. Flax	—		HT	" "

NOLINA  $x = 18, 19$

<i>microcarpa</i>		36	Sato 1942	HT	S.W. U.S.A.
<i>parryi</i>		38	Lenz 1950	H	S. California

**CORDYLINE**  $x = 19$

<i>australis</i>	Cabbage Tree	38	Bowden 1945a	HT	New Zealand
		120	M. & S. 1935		
<i>indivisa</i>		38	Sato 1942	HT	" "

**DASYLIRION**  $x = 19$

<i>acrotichum</i>		38	Sato 1942	AHTV	Mexico
<i>longissimum</i> ( <i>quadrangulatum</i> )		38	" "	AHTV	"
<i>texanum</i>		38	Sato 1935b	AHTV	Texas
<i>wheeleri</i>		38	" "	AGTV	Mexico

**DRACAENA (CORDYLINE)**  $x = 19$

<i>arborea</i>		38	McKelvey & S. 1933	T	Trop. Africa
<i>deremensis</i>		38	Sato 1942	H	" "
<i>draco</i>	Dragon Tree	38	Bowden 1940a	HReT	Canary Is.
<i>terminalis</i> ( <i>spicata</i> )		38	Sato 1935b	HT	E. Indies
		38	Whitaker 1934a		
<i>fragrans</i>		42	Guard & H. 1941	T	Trop. Africa
<i>cylindrica</i>		39	Sato 1942	H	W. Tr. Africa
<i>thalioides</i>		40	" "	H	Trop. Africa
<i>cannaefolia</i>		c. 114	" 1935b	T	Australia
<i>congesta</i> ( <i>stricta</i> )		c. 114	" "	M	Mal., Austr.

**SANSEVIERIA**  $x = 20, 21$

<i>zeylanica</i>	Nagaset, Ceylon	40, 42	M. & S. 1935	HT	Ceylon
	Bowstring Hemp	42	E.K.J.*		
<i>roxburghiana</i>	Indian B. H.	40	Patel & N. 1937	HT	India
<i>metallica</i>		40	Sato 1942	H	<i>cult</i>
<i>grandis</i>		100	" "	T	Trop. Africa
<i>cylindrica</i>	Ife H.	102-104	Heitz 1926	HT	" "

**DORYANTHES**  $x = 24$

<i>excelsa</i>		48	Sato 1938	H	Australia
<i>guilfoylei</i>		48	" "	H	"
<i>palmeri</i>		48	" "	H	"

**BESCHORNERIA**  $x = 30$

<i>tubiflora</i>		60	Sato 1938	H	Mexico
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**BRAVOA**  $x = 30$

<i>geminiflora</i>		60	Sato 1942	H	C. Mexico
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**FURCRAEA (FOURCROYA)**  $x = 30$

<i>gigantea</i>	Mauritius H.	60	M. & S. 1935	HT	C. Amer., W. Ind
<i>pubescens</i>		60	" "	HT	Mexico
<i>bedinghausii</i>		60	McKelvey & S. '33	H	"
<i>selloa</i>		60	Devidé unp.	H	Guatemala

**HESPEROYUCCA (YUCCA)**  $x = 30$

<i>whipplei</i>		60	McKelvey & S. '33	H	California
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**HESPERALOË**  $x = 30$

<i>parviflora</i>		60	McKelvey & S. '33	H	California
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**MANFREDIA (AGAVE)**  $x = 30$

<i>virginica</i>		60	McKelvey & S. '33	T	S.E. U.S.A.
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**POLYANTHES (POLIANTHES)  $x = 30$**

*tuberosa* Tuberose 60 Sato 1938 HP Mex., cult

**RUNYONIA  $x = 30$**

*longiflora* 60 Granick 1944 — Mexico

**SAMUELA  $x = 30$**

*faxoniana* Date Yucca 60 McKelvey & S. '33 H W. Texas

**YUCCA \*  $x = 30$**

*aloifolia* Spanish Bayonet 60 Watkins 1936 H Mex., W. Indies  
*arkansana* & 4 spp. 60 " " H S: C. U.S.A.  
*australis* 60 Snoad 1952 H Mexico  
*wrightii* 60 M. & S. 1935 — —  
*filamentosa* & 6 spp. 60 McKelvey & S. '33 (F)H S.E: U.S.A.

**AGAVE \*  $x = 30$**

*amaniensis* 60 Doughty 1936 T cult  
*bouchei* & 4 spp. 60 Vignoli 1936, 1937 C. America  
*brevispina* & 4 spp. 60 Granick 1944 N.E. Mexico  
*consociata* & 2 spp. 60 McKelvey & S. 1933 T California  
*deserti* 60 Lenz 1950 Colo. Desert, Cal.  
*lespinassei* 60 Doughty 1936 — Yucatan  
*shawii* 60 Lenz 1950 California  
*vivipara* & 3 spp. 60 Sato 1935, 1942 T W. Ind., Guatem,

*angustifolia* Ketki { 60 Doughty 1936 T W. Indies  
 120 Granick 1944  
*americana* Century Pl. 60, 120, 180 " " HT Mexico, Arizona  
 v. *albo-marginata* 120, 226 Sato 1935 "  
*candelabrum* c. 90 Vignoli 1936 T Mexico  
*cantala* Kantala 90 Doughty 1936 T "  
*lurida* c. 90 Vignoli 1936 T "  
*zapupe* { 90 Sato 1942 T "  
 110 Doughty 1936  
*melliflua* & 7 spp. 120 Granick 1944 AT "  
*salmiana* 120 Vignoli 1936 T "  
*variegata* 120 Sato 1935 C. America  
*fourcroyoides* Henequen 138 Doughty 1936 T Yucatan  
*sisalana* Sisal Hemp { c. 138 " T Mexico  
 c. 149 Granick 1944  
*atrovirens* 180 Sato 1938 T "  
*ghiesbreghtii* 180 Vignoli 1936 T "

**HOSTA (FUNKIA)  $x = 30$  (Apomixis) [from Liliaceae]**

*lancifolia (japonica)* 60 Akemine 1935 H Japan  
*fortunei* 60 Yasui 1935 H "  
*plantaginea* Plantain L. 60 " " H Jap., China  
*sieboldiana* 60 " " H Japan  
*venusta* 60 " " — "  
*ventricosa* 60 Sato 1942 — "  
*clausa* 90 Yasui 1935 — Korea

# 314 PALMAE

<b>NIPA</b> $x = 8?$					
<i>fruticans</i>	Nipa Palm	16	Radermacher 1925	ASuT	Ceylon, Burma-Australia
<b>LICUALA</b> $x = 8, 14$					
<i>grandis</i> (as <i>Pritchardia</i> )		16	Venkatasubban '45b	H	New Britain
<i>peltata</i>		28	" "	T	India, Burma
<b>WASHINGTONIA (BRAHEA)</b> $x = 18?$					
<i>filifera</i>	Skirt Palm	36	Sato 1952	HSh	S.W. U.S.A.
<b>CHAMAEDOREA</b> $x = 13?$					
<i>sartorii</i>		c. 12	Suessenguth 1920	HT	Mexico
<i>corallina</i>		c. 26	Söderberg 1919	HT	Venezuela
<i>elatior</i> ( <i>karwinskyana</i> )		26	Suessenguth 1920	—	Mexico
<i>glaucofolia?</i>		26	" "	HT	
<b>COLLINIA (CHAMAEDOREA)</b> $x = 13$					
<i>elegans</i>		26	E.K.J.*	H	Mexico
<b>CALAMUS</b> $x = 14$					
<i>caryotoides</i>		28	E.K.J.*	HT	Australia
<b>DIDYMOSPERMA</b> $x = 14$					
<i>porphyrocarpum</i>		28	Gassner 1941		India, Malaya
<b>PINANGA</b> $x = 14$					
<i>disticha</i>		28	Gassner 1941		India
<b>ZALACCA</b> $x = 14$					
<i>affinis</i>		28	Bosch 1947		Malaya
<b>CHRYSALIDOCARPUS (DYPsis)</b> $x = 14?, 16?, 18?$					
<i>lutescens</i>		{ 28	Gassner 1941	H	Madagascar
as <i>Areca</i>		{ 32	Venkatasubban 1945b	H	
<i>madagascariensis</i>		36	" "	H	
<b>ACTINOPHLOEUS (KENTIA, PTYCHOSPERMA)</b> $x = 16$					
<i>angustifolius</i>		32	Rawi, D. 1951		New Guinea
<i>macarthurii</i>		32	Sato 1946	H	" "
<i>sanderianus</i>		32	Venkatasubban 1945b	H	" "
<b>ARECA</b> $x = 16$					
<i>catechu</i>	Betel Nut	32	Sato 1946	DMToW	Trop. Asia, cult
<i>triandra</i> ( <i>aliciae</i> )		{ c. 32	E.K.J.*	HV	India, Malaya
		32	Rawi, D. 1951		
<b>ARECASTRUM (COCOS)</b> $x = 16$					
<i>romanzoffianum</i>	Queen P.	32	E.K.J.*, Sato 1946	HV	Trop. S. Amer.
<b>ARENCA</b> $x = 16$					
<i>pinnata</i>	Sugar Palm	{ 26	E.K.J.*		
( <i>saccharifera</i> )		{ 32	Sato 1946	ASuSuVT	India, Malaya
		{ 32	Venkatasubban 1945b		
<i>encleri</i>		32	Sato 1946	HT	Formosa
<b>ARIKURYROBA (COCOS)</b> $x = 16$					
<i>schizophylla</i>		32	Venkatasubban '45b	H	Brazil

<b>ATTALEA</b> $x = 16$					
<i>cohune</i>	Cohune Palm	32	Sato 1946	AOT	Honduras
<i>spectabilis</i>		32	Gassner 1941		Brazil
<b>BUTIA (COCOS)</b> $x = 16$					
<i>bonnetii</i>		32	Sato 1946	H	Brazil
<i>capitata</i>	Yatay Palm	32	„ „ E.K.J.*	H	„
<b>CARYOTA</b> $x = 16$					
<i>urens</i>	Kitul	32	Sato 1946	AHStSuTW	Trop. Asia
<b>COCOS</b> $x = 16$					
<i>nucifera</i>	Coconut	{ 32	Santos 1928,	ABNOSuTToW	
		32	E.K.J.*	Pacific, <i>cult</i>	
<b>CYRTOSTACHYS</b> $x = 16$					
<i>lakka</i>	Sealing Wax P.	32	Rawi, D. 1951	H	Mal., E. Indies
<b>DICTYOSPERMA</b> $x = 16$					
<i>album</i>		32	Venkatasubban '45b	H	Mascarene Is.
<b>ELAEIS</b> $x = 16$					
<i>guineensis</i>	Oil Palm	{ 32	Sato 1946, E.K.J.*	AHMOTV	
		32	Venkatasubban '45b	Trop. Africa	
<b>EXORRHIZA</b> $x = 16$					
<i>savoryana</i>		32	Sato 1946	—	Bonin Is.
<b>HETEROSPATHE</b> $x = 16$					
<i>elata</i>		32	Venkatasubban '45b	H	Philippines
<b>HYOPHORBE</b> $x = 16$					
<i>verschaffeltii</i>	Spindle P.	32	Sato 1946	H	Mascarene Is.
<b>JUBAEA</b> $x = 16$					
<i>spectabilis</i>	Coquito	32	Sato 1946	HNSuTW	Chile
<b>LATANIA</b> $x = 16$					
<i>commersonii (rubra)</i>		32	Venkatasubban '45b	FHT	Mascarene Is.
<i>verschaffeltii (aurea)</i>		32	Bosch 1947	HW	„ „
<b>NEPHROSPERMA</b> $x = 16$					
<i>van houtteana</i>		32	Venkatasubban '45b	H	Seychelles
<b>ONCOSPERMA</b> $x = 16$					
<i>filamentosum</i>	Nibung P.	32	Venkatasubban '45b	TVW	Malaya
<b>ORBIGYNA</b> $x = 16$					
<i>lydiae</i>		32	Gassner 1941	—	Brazil
<b>RAPHIA</b> $x = 16$					
<i>ruffia</i>	Raffia	32	Sato 1946	HT	E. Afr., Madag.
<b>STEVENSONIA</b> $x = 16$					
<i>borsigiana (grandiflora)</i>		32	Rawi, D. 1951	H	Seychelles

AIPHANES (MARTINEZIA)		$x = 16, 18$				
<i>caryotaefolia</i>		{ 32 Sato 1946	H	S. America	W. Indies	
		32 Venkatasubban '45b				
<i>erosa</i>		36 Gassner 1941				
HOWEA $x = 16, 18$						
<i>forsteriana</i>		32 Venkatasubban '45b	H	Lord Howe Is.		
<i>belmoreana</i>		36 Sato 1946	H			
RHAPIS $x = 16, 18$						
<i>excelsa (flabelliformis)</i>		{ 32 Bosch 1947	HTo	S. China		
		36 Sato 1946				
		36 Venkatasubban '45b				
<i>humilis</i>		36 Sato 1946	H			
BORASSUS $x = 18$						
<i>flabellifer</i>	Palmyra P.	{ 36 Venkatasubban '45b	AFMSuTVW	India, Mal.		
		36 Bosch 1947				
CHAMAEROPS $x = 18$						
<i>humilis</i>	Fan P.	36 Sato 1946	HT	W. Medit.		
COCCOTHRINAX (THRINAX) $x = 18$						
<i>argentea</i>		{ 36 Sato 1946	H	San Domingo		
		36 Venkatasubban '45b				
COPERNICIA $x = 18$						
<i>cerifera</i>	Carnauba Wax P.	36 E.K.J.*	FMOSTSuTW	W. Ind., Brazil		
EUPRITCHARDIA (PRITCHARDIA) $x = 18$						
<i>pacifica</i>		36 Venkatasubban '45b	HT	Fiji		W: N. America
<i>filifera</i>		36 „ „	FH			
HYPHAENE $x = 18$						
<i>wildbrandi</i>		36 Sato 1946	FT	Trop. Africa		
LIVISTONIA $x = 18$						
<i>chinensis</i>	Chinese Fan P.	36 Venkatasubban '45b	HT	C. China		
<i>v. subglobosa</i>		36 Sato 1946	HSt	Malaya		
<i>rotundifolia</i>		36 Venkatasubban '45b				
PHOENIX $x = 18$						
<i>canariensis</i>		36 Beal 1937	FTW	Canary Is.		
<i>dactylifera</i>	Date Palm	{ 28? Doulat 1944	AFTW	Persia, cult		
		36 Beal 1937				
<i>humilis (hanceana)</i>		36 „ „	FHT	Ind., Bur., China		
<i>paludosa</i>		36 Venkatasubban '45b	HT	Bengal—Cochin.		
<i>pusilla (farinifera)</i>		36 Patel & N. 1937	AFStSuT	India, Ceylon		
<i>reclinata</i>		36 Beal 1937	AFH T	Trop. Africa		
<i>sylvestris</i>		36 „ „	AMSuT	India		
SABAL $x = 18$						
<i>bermudana</i>	Ber. Palmetto	36 Sato 1946	HT	Bermuda		
<i>(blackburniana)</i>						
<i>causiarum</i>	P.R. Hat P.	36 Bowden 1945b	TW	Puerto Rico		
<i>minor</i>	Dwarf Palmetto	36	H	S.E: U.S.A.		

**SABAL (cont.)**

<i>palmetto</i>	Cabbage P.	36	Bowden, 1945b	HTVW	S.E : U.S.A.
<i>umbraculifera</i>		36	Venkatasubban '45b	H	Hispaniola

**THRINAX 18**

<i>excelsa</i>		36	Venkatasubban '45b	H	Jamaica
<i>morrisii</i>		c. 36	E.K.J.*	H	W. Indies

**TRACHYCARPUS (CHAMAEROPS) x = 18**

<i>fortunei</i>	Windmill P.	36	Sato 1946	HTV	China, Jap., Bur.
<i>(excelsa)</i>					

**TRITHRINAX 18**

<i>brasiliensis</i>		36	Sato 1946	H	S. Braz., Parag.
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**CORYPHA x : 18**

<i>umbraculifera</i>	Talipot P.	36	Olah 1954		India, Ceylon
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**ROYSTONEA (OREODOXA) x = 18, 19**

<i>oleracea</i>	Cabbage P.	36	Simmonds 1954	V	W. Indies
<i>regia</i>	Cuba Royal P.	{ 36	Venkatasubban '45b	H	
		{ 38	Sato 1946		

**315 PANDANACEAE****PANDANUS x = 30, 32**

<i>pacificus</i>		60	Tjio 1948	H	Pacific Is.
<i>pygmaeus</i>		60	" "	H	Madagascar
<i>boninensis</i>		c. 64	Harada 1947	H	Pacific Is.

**316 CYCLANTHACEAE****CARLUDOVICA x = ?**

<i>palmata</i>		18	E.K.J.*	HT	S. America
<i>latifolia</i>		30	Harling 1946		W. Indies
<i>insignis</i>	Panama-hat Pl.	32	E.K.J.*	H	W. I., Trop. Amer.



## Group V

### HAEMODORALES

317–322

H(ST)

### BURMANNIALES

323–325

H

### ORCHIDALES

326

H



*Cephalanthera erecta*



## 317 HAEMODORACEAE

### ANIGOZANTHUS $x = 6$

<i>flavidus</i>	Kangaroo Paw	12	Stenar 1927	H	Australia
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## 318 HYPOXIDACEAE

### RHODOHYPOXIS $x =$

<i>baueri</i>		12	Sato 1942	H	S. Africa
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### CURCULIGO $x = 9$

<i>recurvata (capitulata)</i>		18	Sato 1938, Tjio 1948	H	Tr. Asia, Austr.
<i>sumatrana</i>		18	Tjio 1948	—	Trop. Asia
<i>orchioides</i>	{	18	Sheriff 1946	HM(R)	"
	c. 50	Sato 1938			

### HYPOXIS $x = 11$

<i>pusilla</i>		22	W. D. Jackson unp.		Australia
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## 321 TACCACEAE

### TACCA $x = 15$

<i>involutrata</i>		30	Baldwin & S. 1951a		Trop. Africa
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## 326 ORCHIDACEAE

### VANDA $x = 9?, 19$

<i>tricolor</i>	{	18, 36	Hoffmann 1930		
		28	Heim 1941	H	Java
		38	Woodard 1952		
<i>coerulea</i>		38	Storey 1953	H	Assam, Bur., Siam
<i>hookeriana</i>		38	" "	H	Borneo
<i>sanderiana</i>		38	" "	H	Philippines
<i>teres</i>		38	" "	H	Burma, Siam
Garden vars.		38, 95	" "	H	cult

### PLEIONE $x = 10$

<i>pricei</i>	20 + 1B	La Cour 1952	H	Formosa
<i>formosana</i>	40	Miduno 1940	H	"

### SPHRANTHES $x = 10$

<i>sinensis</i>	20	Miduno 1939	H	Tr. & Temp. Asia
<i>spiralis</i>	30	Hagerup 1944	H	Eur., N. Afr., Asia Minor

### CYPRIPEDIUM $x = 10, 11$

<i>acaule</i>	20	Belling 1926	H	E: N. America
<i>pubescens</i>	20	" "	HM	N. America
<i>reginae (spectabile)</i>	22	Hoffmann 1930	H	E: N. America
as <i>hirsutum</i>	20	Humphrey 1934		
<i>calceolus</i>	22	Francini 1931	H	Eurasia
<i>parviflorum</i>	20	Carlson 1945	H	N. America

# DENDROBIUM $x = 10, 19$

<i>nobile</i>	{ 20	Hoffmann 1930	H	Himal., China
	40	Heim 1941		
<i>bronckartii</i>	40	" "	H	Annam
<i>chrysotoxum</i>	40	Hoffmann 1930	H	Burma
<i>infundibulum</i>	40	" "	H	"
<i>superbum</i>	40	Heim 1941	H	Philippines
<i>thyrsiflorum</i>	40	Hoffmann 1930	H	Burma
<i>wardianum</i> v. <i>giganteum</i>	40	" "	H	"
<i>monile</i> ( <i>catenatum</i> )	38	Miduno 1940	H	China, Japan

# EPIPACTIS $x = 10, 16, 18, 19$

<i>helleborine</i>	Helleborine { 20, 40	Weijer 1952	—	Eur., N. Asia, N.
( <i>latifolia</i> )	38, 40	Hagerup 1947		Africa
<i>shizuoi</i>	32	Miduno 1938	—	Japan
<i>leptochila</i>	36, 40	Hagerup 1947	—	Europe
<i>atrorubens</i> ( <i>atropurpurea</i> )	40	" "	—	Eur., N. As., Cauc.
<i>microphylla</i>	40	" "	—	Asia M., Cauc.
<i>palustris</i>	40	" "	—	Eur., N. Afr., T.
				Asia
<i>confusa</i> ( <i>persica</i> )	40	" "	—	Persia
<i>thunbergii</i>	40	Miduno 1938	—	Japan

# GOODYERA $x = 11, 14, 15$

<i>procera</i>	{ 22	Afzelius 1943	—	Ind., Mal., China
	42	Miduno 1939		
<i>hachijoensis</i>	28	" "	—	Japan
<i>matsumurana</i>	28	" "	—	Luikiu Is.
<i>macrantha</i>	30	" "	H	Japan
<i>repens</i>	30	Richardson 1935	H	N. Temp.
<i>maximowicziana</i>	42	Miduno 1939	—	Japan

# HIMANTOGLOSSUM $x = 12$

<i>hircinum</i>	Lizard O. 24, 36	Heusser 1938	—	C. & S. Eur., N. Africa
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# THELYMITRA $x = 13$

<i>longifolia</i>	26	Hair 1942	—	New Zealand
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# ONCIDIUM $x = 13, 14$

<i>bicallosum</i>	28	Hoffmann 1930	H	Guatemala
<i>flexuosum</i>	28	" "	H	Brazil
<i>varicosum</i>	56	" "	H	"
<i>excavatum</i>	52	Heim 1941	H	Peru

# PAPHIOPEDILUM \* $x = 13, 14, 16, 17, 18, 19$

<i>bellatulum</i>	& 13 spp. 26	Duncan 1947	H	Burma
<i>philippinense</i>	26	Duncan & M. 1949b	H	Philippines
<i>concolor</i>	26	" " 1948	H	Burma
<i>hirsutissimum</i>	26, 27-28	Duncan 1947	H	Assam, India
<i>insigne</i>	26, 28	" "	H	Nepal
v. <i>Harefield Hall</i>	39	Mehlquist 1947	H	<i>cult</i>
<i>rothschildianum</i>	26, 28	Duncan 1947	H	Papua
<i>spicerianum</i>	26, 28, 30	" & M. 1949a	H	Assam
<i>praestans</i>	28	" 1947	H	Papua
<i>collinum</i>	32	" "	H	Cochin China

# PAPHIOPEDILUM (cont.)

<i>chamberlainianum</i>	32	Duncan & M. 1949c	H	New Guinea
<i>mastersianum</i>	32	" 1947	H	Malaya
<i>dayanum</i>	34	" "	H	Borneo
<i>tonsum</i>	34	" "	H	Sumatra
<i>wardii</i>	34 + 6-9B	" "	H	Up. Burma
<i>curtişli</i>	36	" "	H	Sumatra
<i>glaucophyllum</i>	36	" "	H	Java
<i>javanicum</i>	36	" "	H	Java, Borneo
<i>lawrenceanum</i>	36	" "	H	Borneo
<i>barbatum</i>	38	" "	H	Malacca
<i>superbiens</i>	38	" "	H	"
<i>venustum</i>	42	" "	H	Nepal
<i>sublaeve</i>	58	" & M. 1950	H	Borneo, Siam
<i>maudiae</i>	34	McQuade 1949	H	<i>cult</i>
Garden forms	{ 26-29, 39-42, 53-56, 70	Duncan 1947	H	"
CALYPSO $x = 14$				
<i>bulbosa</i>	28	Hagerup 1944	H	N. Temp.
HAMMARBYA (MALAXIS) $x = 14$				
<i>paludosa</i> Bog O.	28	Hagerup 1944	—	Eur., Sib., N. Am
HABENARIA $x = (7), 14, 21$				
<i>oldhami</i>	28	Miduno 1940	H	Japan
<i>sagittifera</i>	28	" 1939	—	Manch., Japan
<i>dilatata</i> Bog Orchis	42	Humphrey 1934	H	N. America
<i>straminea</i>	42	Harmsen 1943	—	Arctic
<i>dentata (geniculata)</i>	62	Miduno 1939	H	India, Burma
MALAXIS $x = 15?$				
<i>monophylla</i>	c. 30	Hagerup 1944	—	N. Temp.
LIPARIS $x = 15, 16, 21$				
<i>krameri</i>	30	Miduno 1939	—	Japan
<i>kumokiri</i>	30	" "	—	Korea, Japan
<i>makinoana</i>	30	" "	—	Japan
<i>loeselii</i>	32	Hagerup 1941b	H	N. Temp.
<i>nervosa</i>	42	Miduno 1940	—	Japan, China
LIMODORUM $x = 16$				
<i>abortivum</i>	64	Malvesin-F. & E. '49	—	Europe
STELIS $x = 16$				
<i>ciliaris (atropurpurea)</i>	32	Hoffmann 1930	H	Mexico
<i>miersii</i>	32	" "	H	Brazil
VANILLA $x = 16$				
<i>aromatica</i>	32	Heim 1950	H	Brazil, W. Ind.
<i>fragrans (planifolia)</i> Vanilla	32	" "	HP	W. Indies
<i>hartii</i>	32	" "	—	"
<i>imperialis</i>	32	" "	H	Trop. Africa
<i>moonii</i>	32	" "	—	Ceylon
<i>papino</i>	32	" "	—	—
<i>pompona</i> W. Indian V.	32	" "	HP	Trop. America
<i>thartii</i>	32	" "	—	—

<b>BLETILLA (BLETIA) <math>x = 16, 18</math></b>					
<i>striata (hyacinthina)</i>	32	Miduno 1954	H	China, Japan	
<i>formosana</i>	36	" "		Formosa	
<b>CEPHALANTHERA <math>x = 16, 17, 18</math></b>					
<i>longifolia</i>	32	Hagerup 1947		Eur., N. Afr., W. & N. Asia	
<i>damasonium</i> Helleborine	{ 32	" "		Eur., N. Afr.,	
( <i>grandiflora</i> )	{ 36	Barber 1942		Cauc.	
<i>falcata</i>	34	Miduno 1938	H	Japan	
<b>LISTERA <math>x = 17-21</math></b>					
<i>ovata</i> Twayblade	{ 34 + 1B	MacMahon 1936			
	{ 34, 36, 38	L. & L. 1944b		Eur., Cauc., Sib.	
	(17)	Hagerup 1947			
<i>cordata</i>	{ 38	S. & S. 1940		N. Temp.	
	{ 42	Blackburn, T. 1936			
<b>ANACAMPTIS <math>x = 18</math></b>					
<i>pyramidalis</i>	36	Barber 1942	H	Eur., N. Afr., S.W. Asia	
<b>ASCOTAINIA (TAINIA) <math>x = 18</math></b>					
<i>laxiflora</i>	36	Miduno 1940	H	Liukiu Is.	
<b>NEOTTIA <math>x = 18</math></b>					
<i>nidus-avis</i> Bird's Nest O.	36	Barber 1942		Eur., Cauc., Sib.	
<b>OPHRYS <math>x = 18</math></b>					
<i>apifera</i> Bee O.	36	Barber 1942		Eur., N. Africa	
<i>insectifera</i> Fly O.	36	" "		Europe	
<i>fuciflora</i> Late Spuer O.	36	Heusser 1938		C. & S. Eur., S.W. Asia	
<i>sphegodes</i> Early S.O.	36	" "		Eur., N. Africa	
<b>SARCANTHUS <math>x = 18</math></b>					
<i>rostratus</i>	36	Hoffmann 1930	H	China	
<b>SERAPHIAS <math>x = 18</math></b>					
<i>vomeracea</i>	36	Heusser 1938	—	S. Europe	
<b>ORCHIS (incl. DACTYLORCHIS) <math>x = 16, 18, 19, 20, 21</math></b>					
<i>papilionacea</i>	32	Heusser 1938	H	S. Europe	
<i>morio</i> Green-Winged O.	36	Hagerup 1938	—	Eur., Cauc., Sib.	
<i>coriophora</i>	38	Vermeulen 1949	—	Europe	
<i>aristata</i>	40	Miduno 1939	—	N.E. Asia	
<i>cruenta</i>	40	Vermuelen 1947	H	Europe	
<i>foliosa (maderensis)</i>	40	" "	H	Madeira	
<i>fuchsii (maculata)</i> Spotted O.	40		—	Europe	
<i>pallens</i>	40	Heusser 1938	H		
<i>purpurea</i> Lady O.	{ 40	Heim 1941	H	Eur., Asia Min.,	
	{ 42	Vermuelen 1947		Caucasus	
<i>sambucina</i>	{ 40	" 1947	—	Europe	
	{ 42	Hagerup 1938			
<i>strictifolia</i> Marsh O.	40	" "			
as <i>latifolia</i>	40, 80	Maude 1939			
<i>traunsteineri</i>	40, 80, 120, 122	Vermuelen 1947	—	Eur., S.W. Asia	

# ORCHIS (cont.)

<i>elodes (ericetorum)</i>		79, 80	Maude 1939	—	Eur.—Persia
<i>caucasica</i>		80	S. & S. 1940	—	Caucasus
<i>maculata</i>	Spotted O.	80	Vermuelen 1947	H	N.W. Europe
<i>majalis</i>		80			Europe, etc.
<i>munbyana</i>		80			N. Africa
<i>purpurella</i>		80			N.W. Europe
<i>sesquipedalis</i>		80			Spain, Portugal
<i>praetermissa</i>		80, 82	Maude 1939	—	N. Europe
<i>fuchsii</i> × <i>praetermissa</i>		60	J. Heslop-Harrison '53	—	<i>nat. hybrid</i>
<i>fuchsii</i> × <i>purpurella</i>		60	" "	—	
<i>globosa</i>		42	Diannelidis 1949	—	Eur., Asia Min.
<i>laxiflora</i>		42	Vermuelen 1947		Eur., N. Afr., S.W. Asia
<i>mascula</i>	Early Purple O.	42	" "	H	Eur., N. Afr., N. & W. Asia
<i>militaris</i>	Soldier O.	42	" "	H	Eur., As. M., Sib.
<i>palustris</i>		42	Heusser 1938		Eur., N. Afr., S.W. Asia
<i>provincialis</i>		42		H	Europe
<i>rotundifolia</i>		42	Humphrey 1932	H	E: N. America
<i>simia</i>	Monkey O.	42	Heusser 1938		Eur., N. Afr., Caucasus
<i>spectabilis</i>		42	Humphrey 1932	H	E: N. America
<i>tridentata</i>		42	Heusser 1938	H	S. Europe
<i>ustulata</i>	Dark-Winged O	42	Vermuelen 1947		Eur., Cauc., Sib.
PLOGLOTTIS x 19					
<i>javanica</i>		38	Afzelius 1943	H	Java
AERIDES x 19, 20					
<i>japonicum</i>		38	Sugiura 1936a	H	Japan
<i>lawrenceae</i>		40	Heim 1941	H	Philippines
ANAGRAECUM x = 20					
<i>leonis</i>		40	Heim 1941	H	Comoro Is.
BRASSAVOLA x = 20					
<i>nodosa</i>		40	Kamemoto 1950	H	C. Amer., Brazil
<i>perrinii</i>		40	Afzelius 1943	H	Brazil
CALANTHE * x = 20					
<i>discolor</i>	& 5 spp.	40	Miduno 1940	H	Japan
CATTLEYA * x = 20					
<i>aurantiaca</i>	& 14 spp.	40	Kamemoto 1950	H	Cent. America
<i>labiata</i>		40, 41, 42		H	Brazil
<i>bowringiana</i>		41		H	Cent. America
Garden forms	40, 42, 60-62, 80, 83, 84		1952	H	<i>cult</i>
COELOGLOSSUM x = 20					
<i>viride</i>	Frog O.	40, 80	Afzelius 1943	—	Eur., W. Asia, N. America
COELOGYNE x = 20					
<i>fimbriata</i>		40	Hoffmann 1930	H	Himalayas

COELOGYNE (cont.)

<i>flexuosa</i>	40	Hoffmann 1930	H	Java
<i>fuliginosa</i>	40	" "	H	N. India

CYMBIDIUM \*  $x = 20$

<i>insigne</i> & 12 spp.	40	Mehlquist 1952	H	Annam
<i>bicolor</i>	40	Swamy 1941	H	Ceylon
<i>sinense</i>	40	Sugiura 1936a	H	China
Garden forms	40, 60, 80	Mehlquist 1952	H	cult

DENDROCHILUM (PLATYCLINIS)  $x = 20$

<i>glumaceum</i>	40	Hoffmann 1930	H	Philippines
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ELEORCHIS  $x = 20$

<i>conformis</i>	40	Miduno 1939	—	Japan
<i>japonica</i>	40	" "	—	"

EPIDENDRUM \*  $x = 20$

<i>atropurpureum</i> & 9 spp.	40	Kamemoto 1950	H	Brazil
<i>ramiferum</i>	40	Hoffmann 1930	H	Mexico
<i>ciliare</i>	40, 80, 160	Geitler 1940a	H	Trop. America
<i>nocturnum</i>	{ 40	Hoffmann 1930	H	" "
	{ c. 80	Kamemoto 1950		
<i>radicans</i>	40, 70	" "	H	Guatemala
<i>xanthium</i>	60	" "	H	Brazil

GONGORA  $x = 20$

<i>galeata</i>	40	Hoffmann 1930	H	Mexico
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GYMNADENIA  $x = 20$

<i>conopsea</i> Fragrant O.	{ 40	Diannelidis 1949	H	Eur., N. & W. A.
	{ 40, 80	S. & S. 1940		
<i>odoratissima</i>	40	Heusser 1938	H	Europe
<i>chidori</i>	42	Miduno 1940	H	Japan

LUISIA  $x = 20$

<i>boninensis</i>	40	Miduno 1940	—	Bonin Is.
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HERMINIUM  $x = 20$

<i>monorchis</i> Musk O.	40	Heusser 1938	—	Eur., Cauc., Temp Asia
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LAELIA  $x = 20$

<i>anceps</i>	40	Kamemoto 1950	H	Mexico
<i>purpurata</i>	40	" "	H	Brazil
<i>rubescens</i>	40	" "	H	Mexico
<i>gouldiana</i>	40, 60	" "	H	"
<i>autumnalis</i>	41, 42	" "	H	"
<i>albida</i>	42, c. 63	" "	H	Guatemala

LAELIOCATTLEYA  $x = 20$

Hybrids	60-63, 80	Kamemoto 1950	H	cult
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NIGRITELLA  $x = 20$  (16?)

<i>nigra</i>	{ 40	Heusser 1938	H	Eur. Mtns.
	{ 64	Afzelius 1943		
<i>rubra</i>	80	Heusser 1938	—	" "

PHALAENOPSIS \*  $x = 19$

<i>schilleriana</i> & 6 spp.	38	Woodard 1951	H	Philippines
<i>amabilis</i>	38, c. 114	" "	H	cult

<b>STANHOPEA</b> $x = 20$					
<i>oculata</i>	40	Afzelius 1943	H	Mexico	
<i>insignis</i>	40	Hoffmann 1930	H	Brazil	
<i>hernandezii (tigrina)</i>	40		H	Mexico	
<b>ZYGOPETALUM</b> $x = 20$					
<i>mackaii</i>	40	Hoffmann 1930	H	Brazil	
<b>ACERAS</b> $x = 21$					
<i>anthropophora</i> Man O.	42	Barber 1942	H	Eur., N. Africa	
<b>CHAMAEORCHIS</b> $x = 21$					
<i>alpina</i>	42	Heusser 1938		Europe	
<b>CORALLORHIZA</b> $x = 21$					
<i>innata</i>	42	Miduno 1940	H	Eur., N. Amer.	
<i>trifida</i> Coral Root	42	L. & L. 1948		Eur., Sib., N. Am.	
<b>LEUCORCHIS</b> $x = 21$					
<i>albida</i>	42	Heusser 1938		Eur., W. Sib.	
<b>PLATANThERA (HABENARIA)</b> $x = 21$					
<i>bifolia</i> Lesser Butterfly O.	42	Diannelidis 1949	H	Eur., N. Afr., N. Asia	
<i>chlorantha</i> Greater B. O.	42 (21)	Hagerup 1947	H	Eur., Cauc., Sib.	
<i>hologlottis</i>	42	Miduno 1940	H	N. China	
<i>hyperborea</i>	42	Humphrey 1934		N. Temp.	
<i>oligantha</i>	84	Harmsen 1943			
	126	Afzelius 1922		Dahuria	
<b>TRAUNSTEINERA</b> $x = 21$					
<i>globosa</i>	42	Heusser 1938		Eur., Asia M.	
<b>ZEUXINE</b> $x = 22$					
<i>sulcata</i>	44	Seshagiriah 1941	H	India, Mal., China	
<b>PECTEILIS</b> $x = 24$					
<i>radiata</i>	48	Miduno 1940	H	Japan	
<b>ORNITHIDIUM</b> $x = 24?$					
<i>densum</i>	c. 48	Hoffmann 1930	H	Mexico	



## Group VI

### JUNCALES

327-330

H(S)

### CYPERALES

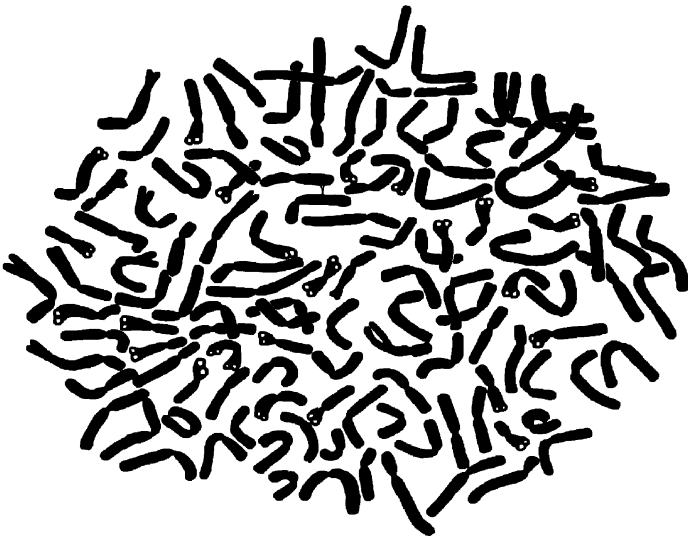
331

H

### GRAMINALES

332

H(ST)



*Sieglingia decumbens*



## 327 JUNCACEAE

<b>LUZULA</b> * $x = 3-36$ (Chromosomes polycentric)					
<i>purpurea</i>		6	Nordenskiöld 1952	—	Canary Is.
<i>bulbosa</i>	& 8 spp.	12	"	—	E: N. America
<i>lactea</i>		12	Malheiros & G. '47	—	Iber. Penin.
<i>nemorosa</i>	& 1 sp.	12	Wagner 1949	—	Eur., W. Asia
<i>campestris</i>	Sweep's Brush	12, 36	Nordenskiöld 1951	—	Cosmop.
<i>comosa</i>		12, 24	" "	—	W: N. America
<i>henriquesii</i>		{ 12	" "	—	Portugal
		{ c. 84	Fernandes 1950b	—	
<i>multiflora</i>		{ 12	Malheiros & G. '47	—	Cosmop.
		{ 24, 36, 48	Gardé & G. 1952	—	
<i>pallascens</i>		{ 12	Nordenskiöld 1951	—	C. & N. Eur.—
		{ 36	Wagner 1949	—	Japan
<i>spicata</i>	Spiked Woodrush	12, 14, 24	Nordenskiöld 1951	—	North Reg.
<i>orestra</i>		20, 22	" "	—	California
<i>alopecurus</i>		24	Wagner 1949	—	S. S. Amer.
<i>forsteri</i>	& 7 spp.	24	Nordenskiöld 1951	—	Eur., W. Asia, N. Africa
<i>wahlenbergii</i>		{ 24	" "	—	Arctic
		{ 36	L. & L. 1944a	—	
<i>frigida</i>		36	Nordenskiöld 1951	—	Scandinavia Mts.
<i>arcuata</i>		36, 42	" "	—	North Reg.
<i>congesta</i>		36, 48	" "	—	W. Europe
<i>sudetica</i>		{ 36	L. & L. 1944a	—	
		{ 48	Nordenskiöld 1951	—	N. Eur. Mts.
		{ 54	Michalska 1953	—	
<i>acuminata</i>		48	Nordenskiöld 1951	—	N. America
<i>confusa</i>		48	L. & L. 1948	—	N. & Arctic
<i>johnstonii</i>		42	Nordenskiöld 1951	—	E. Trop. Africa
<i>rufescens</i>		52	" "	—	Siberia
<i>pilosa</i>	Hairy Woodrush	{ 66	" "	—	North Reg.
		{ 72	Hagerup 1944	—	
<b>OXYCHLOË</b> $x = 8$					
<i>andina</i>		16	Sasaki 1937	—	S. America
<b>JUNCUS</b> $x = 10$ (8?)					
<i>tenuis</i> ( <i>macer</i> )		{ 30	L. & L. 1948	T	N. & S. Amer.
		{ 32	Sasaki 1937	—	
<i>trifidus</i>		30	L. & L. 1944a	—	N. Reg., Alpine
<i>acutiflorus</i>		40	Timm & C. 1940	—	Eur., N. Asia, E. N. America
<i>alpinus</i>		40	L. & L. 1944a	—	North Reg.
<i>anceps</i>		40	Wulff 1937a	—	W. & S. Europe
<i>bulbosus</i> ( <i>supinus</i> )		40	L. & L. 1944a	—	Eur., W. Asia, N. Africa
<i>castaneus</i>	Chestnut Rush	40	" 1948	—	North Reg.
<i>conglomeratus</i>		40	" "	—	Asia M.—Nfld
<i>effusus</i>	Soft Rush	40	" 1944a	HT	Cosmop.
<i>emmanuelensis</i>		40	Fernandes <i>et al.</i> '48	—	Europe
<i>inflexus</i>	Hard Rush	40	L. & L. 1948	—	Eurasia, N. Afr.
<i>maritimus</i>	Sea Rush	40	" 1944a	T	N. & S. Temp.
<i>squarrosus</i>	Heath Rush	40	" 1948	—	Eur., Arctic
<i>subnodulosus</i>		40	Richards & C. 1941	—	Eur., N. Asia, N. Afr., E: N. Am
<i>filiformis</i>		40, c. 80	L. & L. 1948	T	N. Reg., Patag.

# JUNCUS (cont.)

<i>triglumis</i>	50	L. & L. 1944a	—	North Reg.
<i>articulatus</i> Jointed R.	{ c. 60	Wulff 1937a	T	N. Temp.
	80	Timm & C. 1940	—	
<i>acutiflorus</i> × <i>articulatus</i>	60	" "	—	nat. hybrid
<i>bufonius</i> Toad Rush	c. 60, c. 120	Wulff 1937a	T	N. & S. Temp.
<i>prominens</i>	c. 64	Sasaki 1937	—	Japan
<i>gerardi</i> ( <i>bottnicus</i> ) Mud Rush	80	Wulff 1937a	T	N. Temp.
<i>nodulosus</i>	80	L. & L. 1948	—	N.W. Eur., N. Am
<i>arcticus</i>	c. 100	" 1944a	—	North & Arctic

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### BULBOSTYLIS $x = 5$

<i>barbata</i>	10	Tanaka 1941	—	Australia
<i>capillaris</i>	84	" 1937	T	N. America

### FIMBRISYTLIS \* $x = 5, 6, 8, 11$

<i>autumnalis</i>	10	Tanaka 1939a	—	N. & S. America
<i>miliacea</i>	10		—	Tropics
<i>sub-bispicata</i>	10		Fo	Trop. Asia
<i>complanata</i>	16		—	Tropics
<i>aestivalis</i> & 3 spp.	20		—	Trop. Asia, Austr., America
<i>makinoana</i>	24		—	Japan
	44		—	Tr. Asia & Austr.

### ELEOCHARIS (HELEOCHARIS) $x = 5, 8, 9$ (Chromosomes polycentric)

<i>parvula</i>	10	Wulff 1937a	—	Eur., N. Amer., Afr., Japan
<i>palustris</i>	{ 10, 16	Levitsky 1940	—	
	36	Hicks 1929	—	Europe
	38	Håkansson 1954	—	
<i>japonica</i>	20	Tanaka 1937	—	Japan
<i>multicaulis</i>	20	Håkansson 1928	—	Eur., N. Africa
<i>acicularis</i> Spike Rush	{ 20	Tanaka 1937	—	N. & S. Temp.
	c. 56?	Hicks 1929	—	
<i>tuberculosa</i>	30?	" "	—	N. America
<i>uniglumis</i>	{ 16, 32	L. & L. 1948	—	Eur., W. Asia, N. Africa
	46	Walters 1949	—	
	c. 69, 92	Hartshorne unp.	—	
<i>quinqueflora</i>	0, c. 100	A. Löve 1954	—	N. & Arctic

### CAREX \* $x = 6, 7, 8, 9, 10, 13$ , etc. (Chromosomes polycentric)

<i>siderosticta</i>	12, 24	Tanaka 1940	—	China
<i>divisa</i>	14	Tarnavski, T. 1950	—	Eur., Him., S. Afr.
<i>bicolor</i>	16	Reese 1953	—	Arctic, Alp.
<i>lasiolepis</i>	16	Tanaka 1939b	—	Japan
<i>grallatoria</i>	18	" "	—	Kiu-Siu Is.
<i>pilulifera</i>	18	Heilborn 1924	—	Eur., N. Asia
<i>oxyandra</i>	18, 20	Tanaka 1949	—	Japan
<i>reinii</i>	26	" 1939b	—	"
<i>communis</i>	28	Wahl 1940	—	N. America
<i>ericetorum</i>	30	Heilborn 1939	—	Eur., Cauc., Sib.
<i>novae-angliae</i>	30	Wahl 1940	—	N. America
<i>umbellata</i>	30		—	
<i>panicea</i>	32	Heilborn 1939	—	Eur., Temp. Asia

# CAREX (cont.)

<i>pilosa</i>	32, 57	Okuno 1940	—	Italy
<i>firma</i>	34	Reese 1953	—	Europe
<i>nigromarginata</i>	34	Wahl 1940	—	N. America
<i>conica</i>	34, 38, 42	Okuno 1940	—	Japan
<i>pennsylvanica</i>	36	Wahl 1940	—	N. America
<i>atrofusca</i>	36, 40	L. & L. 1948	—	North Reg.
<i>parciflora</i>	38, 39, 44	Tanaka 1949	—	Japan
<i>parallela</i>	44	L. & L. 1942	—	North Reg.
<i>davalliana</i>	46	Heilborn 1939	—	N. Temp.
<i>tomentosa</i>	48	" "	—	Europe
<i>bushii</i>	{ 48	Wahl 1940	—	N. America
	{ 52	Okuno 1940	—	
<i>capitata</i>	50	Heilborn 1939	—	Eur., N. Amer.
<i>gracillima</i>	50, 52, 54	Wahl 1940	—	N. America
<i>rariflora</i>	50, 54	L. & L. 1948	—	N. & Arctic
<i>canescens</i>	54, 56	" 1942	—	Temp.
<i>tenuiflora</i>	58, 62	" "	—	N. Temp.
<i>flava</i> s.l.	60, 68, 70	Davies 1955	—	Eur., Sib.
<i>scirpoidea</i>	{ 64	" 1948	—	" "
	{ 65	Heilborn 1939	—	
<i>leporina</i>	66, 68	L. & L. 1942	—	Eur., N. Amer.
<i>podogyna</i>	{ 68, 72	Tanaka 1941	—	Japan
	{ 76	Okuno 1940	—	
<i>rostrata</i>	{ 76	L. & L. 1944b	—	Eurasia
	{ 82	Wahl 1940	—	
<i>myabei</i>	90	Okuno 1940	—	Japan
<i>adelostoma</i>	106	L. & L. 1942	—	O.W. Arctic
<i>hirta</i>	112	Heilborn 1939	—	Eur., Temp. Asia
220 spp.	36-112	The same authors and:		

Böcher 1938a, Clausen *et al.* 1940, Ehrenberg 1945, Harling 1945, Levan & L. 1942  
Reese 1952a, 1953, Tanaka 1939c, 1948, Wulff 1939a, Davies 1953b, 1955.

# CYPERUS $x = 8, 9$

<i>alternifolius</i>	Umbrella Pl.	32	Tanaka 1937	HT	Madagascar
<i>hakonensis</i>		36	" "	T	Japan
<i>sanguinolentus</i>		48	" "	T	Tropics
<i>fuscus</i>		c. 72	L. & L. 1944b	—	Eur., As., N. Afr
<i>papyrus</i>	Papyrus Gr.	c. 102	Tanaka 1937	HT	Trop. Africa
<i>esculentus</i>	Tiger Nut,	108?	Hicks 1929	BR	Cosmop.
<i>as rotunda</i>	Chufa	108	Tanaka 1937		

# CLADIUM $x = 9$

<i>mariscus</i>		36	Pfeiffer 1942		Temp. & Sub-Tr.
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# SCIRPUS $x = ?$

<i>mucronatus</i>		42	Tanaka 1937	—	Cosmop.
<i>radicans</i>		58	Heilborn 1939	—	"
<i>sylvaticus</i>	Wood Club R.	64	Ehrenberg 1945	—	N. Temp.
<i>maritimus</i>		{ 80	Rodrigues 1953	T	Cosmop.
		{ 86	Blackburn, T. 1936		
		{ 110	Tanaka 1937		

# ISOLEPIS (SCIRPUS) $x = 14?$

<i>setacea</i>		28	Scheerer 1940	—	Cosmop.
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<b>BLYSMUS (SCIRPUS) <math>x = 20, 22</math></b>			
<i>rufus</i>	40	Wulff 1937a	N. Eur., Sib.
<i>compressus</i>	44	Håkansson 1928	Eur., Temp. Asia
<b>SCHOENOPLECTUS (SCIRPUS) <math>x = 20, 21</math></b>			
<i>triquetrus</i>	40	Tanaka 1949	— Cosmop.
<i>lacustris</i>	38, 40, 42	„ 1938	—
<i>tabernaemontani</i>	42	Wulff 1938	Eur., Temp. Asia
<i>americanus</i>	c. 80	„ 1937a	Amer., S.W. Eur., Australia
<b>TRICHOPHORUM (SCIRPUS) <math>x = 00</math></b>			
<i>lipinum (S. hudsonianus)</i>	58	Heilborn 1939	N. Temp.
<i>caespitosum</i>	104	Scheerer 1940	Eur., N. Amer., Himalayas
<b>ELEOGITON (SCIRPUS) <math>x = 30</math></b>			
<i>fluitans</i>	60	Scheerer 1940	Cosmop.
<b>RHYNCHOSPORA <math>x = 13</math>, etc.</b>			
<i>alba</i> White Beak Sedge	26	Scheerer 1940	— Eur., Siberia
	42	L. & L. 1942	—
<i>fusca</i> Brown B. S.	32	Scheerer 1940	— Eur., Russia
<i>japonica</i>	62	Tanaka 1941	— Japan
<b>SCLERIA <math>x = 14</math></b>			
<i>tesselata</i>	28	Tanaka 1941	— Ti. Asia & Austr
<b>DULICHIMUM <math>x = 16</math></b>			
<i>arundinaceum</i>	32	Hicks 1929	— N. America
<b>LIPOCARPHA <math>x = 23</math></b>			
<i>microcephala</i>	46	Tanaka 1937	— E. Asia, Austr.
<b>ELYNA <math>x = 26</math></b>			
<i>myosuroides</i>	52-59	Heilborn 1939	— Azores
<b>ERIOPHORUM <math>x = 29</math>, etc.</b>			
<i>latifolium</i>	c. 54	Scheerer 1940	— N. Temp. & Arc.
	72	L. & L. 1948	—
<i>brachyantherum</i>	58	„ 1944b	— N. Scand., N. Am
<i>russeolum</i>	c. 58	„ 1948	— N. Temp. & Arc.
<i>scheuchzeri</i>	58	„	—
<i>vaginatum</i> Hare's Tail	58	Tanaka 1949	H N. Temp.
<i>virginianum</i>	58?	Hicks 1929	— N. America
<i>angustifolium</i> Cotton Gr.	58, 60	L. & L. 1948	HT N. Temp., Arctic
<i>(polystachyum)</i>			
<i>gracile</i>	60	Tanaka 1949	—
	76	Hagerup 1944	— C. & N. Europe
<b>KOBRESIA <math>x = 26, 36</math></b>			
<i>bellardii</i>	52	Bøcher 1938a	Fo N. Temp.
<i>simpliciuscula</i>	72	L. & L. 1948	— N. Reg., Alpine
<b>SCHOENUS <math>x = 27, 38</math></b>			
<i>nigricans</i>	54	Rodrigues 1953	— W. Eur., S. Afr., Amer.
<i>ferrugineus</i>	76	L. & L. 1944b	— Eur., Russia
<b>KYLLINGA <math>x = 60</math></b>			
<i>brevifolia</i>	120	Tanaka 1941	— Trop. & Subtr.

# 332 GRAMINEAE

## Order of the Tribes with their Basic Numbers

I	Maydeae: 5, 9 (10)	XIII	Lygeae: 20
II	Andropogoneae: 5, 9 (10), 11, 12, 14, 17, 19	XIV	Agrostae: 5, 7
III	Paniccae: 7, 9, 10, 12, 15, 17, 19	XV	Phalarideae: 5, 6, 7
IV	Arundinelleae: 9, 10, 12, 14	XVI	Festuceae: 5, 6, 7, 8, 9, 11, 13
V	Eragrostae: 8, 9, 10, 12	XVII	Aveneae: 4, 6, 7, 9, 13
VI	Sporoboleae: 8, 9, 10, 12, 14	XVIII	Hordeae: 7
VII	Zoisieae: 9, 10	XIX	Stupeeae: 4, 9, 10, 11, 12, 14, 17, 19, 23
VIII	Chlorideae: 7, 9, 10	XX	Oryzeae: 12, 15
IX	Pappophoreae: 9, 10	XXI	Arundineae: 12
X	Aristideae: 11, 12, 19	XXII	Centothecae: 12
XI	Leptureae: 7, 9, 13	XXIII	Bambuseae: 12 (no 2x)
XII	Nardeae: 13		

## TRIBE I. MAYDEAE

### COIX $x = 5$

<i>aquatica</i>	Bead Coix	10	Mangelsdorf & R. 1939, E.K.J.*	FoTo	Trop. Asia
<i>lacryma-jobi</i>	Job's Tears	20	Mangelsdorf & R. '39		<i>cult</i> , Malaya
v. "adlai"	Adlay	20	E.K.J.*	FoGH	
v. <i>mayuen</i> , v. <i>stenocarpa</i>		20	Mangelsdorf & R. '39	FoGTo	
<i>gigantea</i>	Giant Coix	20, 40	E.K.J.*	FoTo	Trop. Asia

### CHIONACHNE (POLYTOCA) $x = (5) 10$

<i>koenigii</i>		20	E.K.J.*	Fo	Trop. Asia
as <i>barbata</i>		20	Mangelsdorf & R. '39		
<i>semiteres</i>		20	E.K.J.*	Fo	..

### SCLERACHNE $x = (5) 10$

<i>punctata</i>		20	Mangelsdorf & R. '39	Fo	Java
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### POLYTOCA $x = (5) 10$

<i>macrophylla</i>		{ 40	Avdulov 1931	Fo	New Guinea, etc.
		40	Simmonds 1954		

### EUCHLAENA $x = (5) 10$

<i>mexicana</i>	Teosinte	20	Mangelsdorf & R. '39	FoG	Mexico
<i>perennis</i>	Perennial T.	40	.. ..	Fo	..

### ZEA $x = (5) 10$

<i>mays</i>	Maize	20 + 1-7B	Randolph 1928	GFoOV	Mexico, <i>cult</i>
	Indian Corn	20 + 1-7B	Darlington & U. '41		
		(10, 40, 80)	cf. Rhoades 1950		
		(30)	Randolph 1932		
			Beadle 1930		

### TRIPSACUM $x = (9) 18$

<i>australe</i>		36	Simmonds 1954	Fo	S. America
<i>floridanum</i>	Florida Gama	36	Longley 1937	Fo	Florida
<i>dactyloides</i>	Eastern G.	36, 72	Mangelsdorf & R. '39	Fo(G)	Tr. & Sub-Tr. Am
<i>latifolium</i>		72	.. ..	Fo	C. America

TRIPSACUM (cont.)

<i>laxum</i>		72	Mangelsdorf & R. '39	Fo	C. America
<i>pilosum</i>	Guatemala G.	72	" "	Fo	"

TRIBE II: ANDROPOGONEAE

SORGHUM  $x = 5$

<i>brevicallosum</i>		10	Garber 1950	—	N. Australia
<i>intrans</i>		10	" "	—	" "
<i>matarankense</i>		10	Garber & S. 1951	—	" "
<i>purpureo-sericeum</i>	10 + 1-6B	{	Janaki Ammal 1940b, Darlington & T. 1941	Fo	Trop. Africa
spp. <i>deccanense</i>		10	Garber 1950	Fo	W. India
<i>dimidiatum</i>		10	" "	Fo	Sudan
<i>stipoideum</i>		10	" "	—	N. Australia
<i>versicolor</i>		10	" "	Fo	E. Trop. Africa
<i>arundinaceum</i>	Kamerun G.	20	Longley 1932	Fo	Trop. Africa
<i>australiense</i>		20	Garber & S. 1951	—	N. Australia
<i>cernuum</i>	White Durra	20	Huskins & S. 1934	FoG	<i>cult</i>
<i>dochna</i>	Sorgo, Sugar S.	20	" "	GSu	"
<i>drummondii</i>	Chicken-Corn	20	Karper & C. 1936	Fo	"
<i>durra</i>	Cholam	20	Huskins & S. 1932	GFo	"
<i>effusum</i>	Kamerun G.	20	Karper & C. 1936	Fo	Trop. Africa
<i>hewisonii</i>		20	" "	Fo	Sudan
<i>leiocladum</i>		20	Garber 1954	—	S.E. Asia, N. Aus
<i>margariiferum</i>	Guinea Corn	20	Huskins & S. 1934	FoG	<i>cult</i>
<i>melaleucum</i>	Shelshelih	20	" "	FoG	Sudan, <i>cult</i>
<i>nitidum</i>		20	Garber 1950	—	E. Australia
<i>plumosum</i>		20 (30)	" 1954	—	N. Australia
<i>roxburghii</i>	Shallu	20	E.K.J.*	FoG	<i>cult</i>
<i>stapfii</i>		20	Krishnaswamy & A. 1940	Fo	India
<i>subglabrescens</i>	Milo	20	Huskins & S. 1934	FoG	<i>cult</i>
<i>sudanense</i>	Sudan Grass	{ 20 (40)	" " Salomon 1940	Fo	N. Africa
<i>verticilliflorum</i>	Wild S. Tabuki	20 + 1B	Huskins & S. 1934	Fo	Trop. Africa
<i>virgatum</i>	Tunis Grass	20	" "	Fo	N. Africa
<i>vulgare</i>	Great Millet	20	Kuwada 1915	FoGSu	<i>cult</i> , Abyssinia
<i>halepense</i>	Johnson Gr.	{ 20, 40	E.K.J.* Huskins & S. 1934	Fo	Trop. Asia, Medit
<i>alrum</i>		40	Saez & N. 1943	Fo	Argentina
<i>laxiflorum</i>		40	Garber 1950	—	N. Australia
<i>macrosporum</i>		40	" "	—	" "
<i>friesii</i>		40	Moffett & H. 1949	—	Trop. Africa
<i>rigidifolium</i>		60	Garber 1950	—	E. Trop. Africa

HYPPARRHENIA  $x = 10, 15$

<i>aucta</i>		20	Krupko 1953	Fo	S. Africa
<i>edulis</i>		20	Brown 1953	Fo	Sudan
<i>hirta</i>	30, 44 (3x-1)		Krupko 1953	Fo	Trop. Africa
<i>dissoluta</i>		40	Moffett & H. 1949	FoT	Trop. & Sub-Tr.
<i>newtonii</i>		40	" "	Fo	Angola

<b>SORGHASTRUM</b> $x = 10$					
<i>elliottii</i>		20	Garber 1950		S.E: U.S.A.
<i>pellitum</i>		20	Saura 1948a		S. America
<i>secundum</i>		20	Garber 1950		S.E: U.S.A.
<i>nutans</i>	Indian Grass	{ 20	Saura 1948a	Fo	E. & C: U.S.A.,
		40	Brown 1950		Mexico
<b>CAPILLIPEDIUM (ANDROPOGON)</b> $x = (5) 10$					
<i>parviflorum</i>	Scented Golden-beard	20	Church 1940	Fo	O.W. Tropics
<b>DIECTOMIS</b> $x = (5) 10$					
<i>fastigiata</i>		20	Moffett & H. 1949	Fo	Tropics
<b>ELYONURUS</b> $x = (5) 10$					
<i>barbiculmis</i>		20	Brown 1951	Fo	Tex., Ariz., Mex.
<i>tripsacoides</i>		20	„ „	Fo	S: U.S.A.—Arg.
<b>MONOCYMBIUM</b> $x = (5) 10$					
<i>ceresiiforme</i>		20	Moffett & H. 1949	FoT	Trop. Africa
<b>POGONATHERUM</b> $x = (5) 10$					
<i>panicum</i>		20	E.K.J.*	H	Trop. Asia
<b>TRACHYPOGON</b> $x = (5) 10$					
<i>montufari</i>	Crinkle-Awn	20	Brown 1951	—	S.W. U.S.A.—Arg.
<i>capensis</i>		40	de Wet 1954b	FoT	S. Africa
<b>VETIVERIA</b> $x = (5) 10$					
<i>lawsoni</i>		20	E.K.J.*	T	India
<i>zizanioides</i>	Kus Kus Grass	20	„	FoHPT	Trop. Asia
<b>AMPHILOPHIS (ANDROPOGON)</b> $x = (5) 10$					
<i>foulkesii</i>		20	Ramanathan 1950	—	India
<i>pertusa</i>		40	Sampath & R. 1949	—	O.W. Tropics
<b>APLUDA</b> $x = (5) 10$					
<i>mutica</i>		{ 20	Hunter 1934	Fo	Trop. Asia
		40	Avdulov 1928		
<b>CHRYSOPOGON (ANDROPOGON)</b> $x = (5) 10$					
<i>aciculatus</i>	Love G.	20	E.K.J.*	FoH	Trop. Asia
<i>montanus</i>		20	„	Fo	„ „
<i>zeylanicus</i>		20	„	T	India
<i>gryllus</i>		40	Avdulov 1931	Fo	Medit.
<b>SCHIZACHYRIUM</b> $x = (5) 10$					
<i>glabrescens</i>		20	Moffett & H. 1949	—	Angola
<i>jeffreysii</i>		40	„ „	—	Trop. Africa
<i>semiberbe</i>		{ 30	de Wet 1954b		Tr. Afr. & Amer.
		50	Krupko 1953		
<b>CYMBOPOGON</b> $x = (5) 10$					
<i>excavatus</i>	Turpentine G.	20	de Wet 1954b	—	O.W. Tr. & Subtr
<i>validus</i>		20	„ „	—	S. Africa
<i>caesius</i>		{ 20	E.K.J.*	P	India
		22	Babu 1936		
<i>goeringii</i>		20	Moriya & K. 1949a	—	Tropics

# CYMBOPOGON (cont.)

<i>nardus</i>	Citronella G.	20	Kuwada 1919	HMPSP	Trop. Asia
<i>polyneurus</i>	Camphor G.	20	Babu 1936	P	India
<i>flexuosus</i>	Malabar L.G.	20, 40	" "	MP	"
<i>coloratus</i>	Myet-Sat	40	" "	P	Burma
<i>martinii</i>	Palmarosa, Ginger G.	40	" "	P	India
<i>citratus</i>	Lemon G.	40, 60	" "	HMP	Trop. Asia
<i>plurinodes</i>		40	de Wet 1954b	Fo	S. Africa

# THEMEDA $x = (5) 10$

<i>arguens</i>		20	Avdulov 1928	Fo	Malaya—Austr.
<i>triandra (forskalii)</i>	Rooi G.	60	" 1931	Fo	Africa
<i>japonica</i>		80	Tateoka 1954	Fo	Japan

# ANDROPOGON $x = (5) 10$

<i>agrostoides</i>		20	Saura 1948a	—	Argentina
<i>cirratus</i>	Texas Beard G.	20	Brown 1950	Fo	S.W: U.S.A., Mexico
<i>elliottii</i>		20	Hunter 1934	Fo	E: N. America
<i>eucomus</i>		20	Moffett & H. 1949	—	Tr. & S. Africa
<i>glomeratus</i>		20	Brown 1950	—	S: U.S.A., C. Am.
<i>micranthus</i>		20	Church 1940	—	Trop. Asia, Austr
<i>monticola</i>		20	Krishnaswamy 1940	—	India
<i>paniculatus</i>		20	Saura 1948a	—	Trop. & Subtrop.
<i>pumilus</i>		20	Krishnaswamy 1940	—	India
<i>virginicus</i>	Broom Sedge	20	Church 1936	Fo	E: U.S.A., C. Am
<i>amplectens</i>		40	Moffett & H. 1949	Fo	S. Africa
<i>annulatus</i>	Angleton G.	40	Warmke <i>et al.</i> 1946	Fo	N. Afr., India
<i>distachyum</i>		40	Saura 1943	Fo	Australia
<i>gayanus</i>	Gamba	40	Moffett & H. 1949	FoT	Medit.
<i>schinzii</i>		40	" "	—	" "
<i>schirensis</i>		{ 20	de Wet 1954b	Fo	Abyssinia
		{ 40	Moffett & H. 1949		
<i>scoparius</i>	Prairie Beard G.	40	Hunter 1934	Fo	U.S.A.
<i>ischaemum</i>		40	Brown 1950	—	Temp. & Tr. O.W
<i>provincialis</i>		40, 60	Church 1940	Fo	U.S.A.
<i>foveolatus</i>		45	Krishnaswamy 1940	—	Tr. Afr. & Asia
<i>caricosus</i>		50	" "	—	Tr. Asia, Masc. Is
<i>edwardsianus</i>		60	Gould 1953	Fo	Tex., Arg., Parag.
<i>exaristatus</i>		60	" "	Fo	S: U.S.A.
<i>ternarius</i>		60	Church 1940	Fo	" "
<i>furcatus</i>	Blue Joint T.F.	{ 60	Nielsen 1939	Fo	N. America
		{ 70	Church 1929b		
<i>hallii</i>	Turkey	{ 60, 70	Nielsen 1939	Fo	C: U.S.A.
	Foot	{ 60, 100	Brown 1950		
<i>perforatus</i>		120	Gould 1953	Fo	Texas, Mexico
<i>barbinodis</i>		180	" "	Fo	S: U.S.A.—Arg.

# HETEROPOGON $x = 10, 11$

<i>contortus</i>	Tangle-head, Spear Grass	{ 20	E.K.J.*		
		{ 60	Brown '51, de Wet '54b	FoT	Cosmop.
		{ 44	Moffett & H. 1949		
<i>melanocarpus</i>		22	" "	—	Tropics

<b>HEMARTHRIA</b> $x = 10$					
<i>altissima</i>		20	de Wet 1954b		Tropics
<b>MICROSTEGIUM</b> $x = 10$					
<i>japonicum</i>		20	Tateoka 1954		India, Japan
<i>vimineum</i> v. <i>polystachyum</i>		40	Ono & T. 1953		" "
<b>ECCOILOPUS</b> $x = 10$					
<i>cotulifer</i>		40	Ono & T. 1953		Japan
<b>EUCLASTA (ANDROPOGON)</b> $x = 10$					
<i>condylotricha</i> ( <i>piptatherus</i> )		40	Avdulov 1931	Fo	Tr. Afr. & Amer.
<b>DICHANTHIUM</b> $x = 10$					
<i>aristatum</i>		20	de Wet 1954b	Fo	O.W. Tropics
<i>annulatum</i>	Marvel G.	40	Karper & C. 1936	Fo	N. & Trop. Afr.,
		40	E.K.J.*		Trop. Asia
<i>nodosum</i>		40	Oke 1950		Trop. Asia
<i>caricosum</i>		40	" "	Fo	
<b>EREMOPOGON (ANDROPOGON)</b> $x = 10$					
<i>foveolatus</i>		40	Sampath & R. 1949,	Fo	N. Afr., Tr. Asia
		40	E.K.J.*		
<b>BOTHRIOCHLOA (ANDROPOGON)</b> $x = 10$					
<i>glabra</i>		40	de Wet 1954b	Fo	O.W. Tropics
<i>insculpta</i>		60	" "	Fo	" " & Austr.
<i>intermedia</i>		40, 60	Oke 1950	Fo	Tr. Asia & Austr.
<i>saccharoides</i>	Silver Beard G.	60, 120	Gould 1953	Fo	S: U.S.A.—Arg.
<b>ISCHAEUM (ANDROPOGON)</b> $x = 10$					
<i>arcuatum</i>		20	de Wet 1954b	Fo	S. Africa
<i>guianense</i>		40	Krishnaswamy 1940	Fo	Trop. America
<i>crassipes</i>		56	Moriya & K. 1949a	Fo	China, Japan
<i>anthephoroides</i>		68	Kuwada 1919	Fo	Japan
<b>IMPERATA</b> $x = (5) 10$					
<i>cylindrica</i>	Alang Alang	20	Janaki Ammal 1941	FoT	Tr. & Subtr. O.W.
as <i>arundinacea</i>	Blady G.	20	Bremer 1924		
<b>ERIANTHUS (SACCHARUM)</b> $x = (5) 10$					
<i>ravennae</i>	Plume G.	20 + 0-1B	Janaki Ammal 1941	HT	Medit., S.W. Asia
<i>pollinioides</i>		30	Li & M. 1951a	—	China
<i>strictus</i>		30	Brown 1951	—	S.E: U.S.A.
<i>elegans</i>		40	Bremer 1924	T	India
<i>arundinaceus</i>		40, 60	" 1934	HT	India, China
		40	Janaki Ammal 1941		
<i>formosanus</i>		60	Li & M. 1951a	—	Formosa
<i>sara</i> ( <i>bengalense</i> )		60	Rümke 1934	T	India, Afghan.
<b>NARENGA (SACCHARUM)</b> $x = 5$					
<i>porphyrocoma</i>		30	Janaki Ammal 1941	T	India, Malaya
as <i>S. narenga</i>		30	Bremer 1924		
<b>SACCHARUM</b> $x = 10, 12$					
<i>arundinaceum</i>		40	E.K.J.*	T	India, China
		40, 60	Bremer 1934		

# SACCHARUM (cont.)

<i>spontaneum</i>	Kans G	<div> <div>54-128</div> <div>48-80</div> <div>96, 112</div> <div>48-128</div> </div>	<div> <div>Singh 1934</div> <div>Janaki Ammal 1936</div> <div>Bremer 1936</div> <div>Moriya 1941</div> </div>	T	Polynesia— Turkestan
<i>officinarium</i>	Sugar Cane	80	Janaki Ammal 1941		
Cult vars. ( <i>off.</i> × <i>spont.</i> , etc.)		<div>80-156</div> <div>70-173</div> <div>80-136</div>	<div>Bremer 1923</div> <div>Li &amp; M. 1951a</div> <div>Li &amp; L. 1948</div>	Su	cult, E. Indies
<i>robustum</i>		42	" "	Su	Mal. & Polyn
<i>barberi</i>		60-144	Weller 1939	Su	cult, India
<i>sinense</i>		82-124	Bremer 1931	Su	cult, China
		<div>118-120</div> <div>117, 123</div>	<div>Li " M. " 1951a</div>	Su	

# SCLEROSTACHYA $x = 12$

<i>fusca</i>	Yekkda	48, 96	Janaki Ammal 1940a	T	India, Burma
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# MISCANTHUS $x = 14, 19$

<i>sinensis</i>		<div>28</div> <div>38</div> <div>38</div> <div>40</div>	<div>Moriya &amp; K. 1949b</div> <div>Leung &amp; L. 1949</div> <div>Takizawa 1952</div> <div>Tateoka 1954</div>	—	China, Japan
<i>japonicus</i>		<div>38 + 3B, 57</div> <div>36</div>	<div>Leung &amp; L. 1949</div> <div>Li &amp; M. 1951b</div> <div>Avdulov 1931</div>	HT	E. Asia. Polyn.
<i>transmorrosinensis</i>		38	Leung & L. 1949	—	Formosa
<i>formosanus</i>		38	" "	—	"
<i>chinensis</i>		42	Church 1929b	HT	E. Asia
<i>saccharifera</i>		64	Hunter 1934	H	"
<i>sacchariflorus</i>		76	Takizawa 1952	—	E. Asia
<i>tinctorius</i>		76, 114	" "	—	Japan

# EREMOCHLOA $x = 9$

<i>ophiuroides</i>	Centipede G.	18	Brown 1950	H	S.E. Asia
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# ARTHRAOXON $x = 9$

<i>langsдорffi (ciliaris)</i>		36	Avdulov 1931	Fo	O.W. Tropics
<i>hispidus</i>		36	Tateoka 1954	Fo	Japan

# CLEISTACHNE $x = 9$

<i>sorghoides</i>		36	Garber 1950	—	E. Trop. Afr., Ind.
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# ISEILEMA $x = 9$

<i>laxum</i>		36	Ramanathan 1950	—	India, Ceylon
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# COELORRACHIS (ROTTBOELLIA) $x = 9$

<i>glandulosa</i>		54	Avdulov 1931	Fo	Trop. Asia
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# ROTTBOELLIA (MANISURIS) $x = 9, 10$

<i>cylindrica</i>		18	Mangelsdorf & R. '39	Fo	N. America
<i>japonica</i>		18	Moriya & K. 1949a	—	Japan
<i>exaltata</i>		<div>20</div> <div>36</div>	<div>Moffett &amp; H. 1949</div> <div>Krishnaswamy <i>et al.</i> 1954</div>	<div>FoT</div>	Trop. Afr. & Asia

# SEHIMA $x = 17$

<i>nervosum</i>		34	Sampath & R. 1949	—	O.W. Tropics
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# TRIBE III: PANICEAE

## PENNISETUM (PENICILLARIA) $x = 7, 9$

$x = 7$

<i>spicatum</i>	Pearl Millet	14	Avdulov 1931	Fo	Tropics
<i>typhoideum</i>	Spiked	14-17	Li & Li 1943	FoG	Trop. Afr., Asia
( <i>glaucum</i> )	Millet	14 (21)	Krishnaswamy & A. '41		
<i>purpureum</i>	Dry Napier	28	Simmonds 1954	FoT	Trop. Africa
	Grass	27	Parodi 1946		
		28, 56	Krishnaswamy & R. '48b		

$x = 9$

<i>alopecuroides</i>		18	Ono & T. 1953	H	China
<i>alopocurus</i>		18	Hrishi 1952	—	India
<i>hohenackeri</i>		18	" " E.K.J.*	Fo	"
<i>setaceum</i> (3x)	Fountain Grass	27	" "	FoH	N. Afr., S.W. Asia
<i>clandestinum</i>	Kikuyu G.	36	" "	Fo	E. Africa
<i>latifolium</i>		36	Parodi 1946	—	Argentina
<i>nervosum</i>		36	" "	Fo	Ecuador—Argent.
<i>subangustum</i>		36	Krishnaswamy <i>et al.</i> 1954	Fo	India
<i>orientale</i>		36	Hrishi 1952	Fo	N. Afr.—India
v. <i>triflorum</i>		45	Krishnaswamy 1940		India
<i>villosum</i>	Feathertop	45	" "	FoH	N.E. Trop. Afr.
<i>polystachyon</i>	Mission G.	54	Krishnaswamy & R. 1949	Fo	India
<i>frutescens</i>		63	Parodi 1946	—	Argentina
<i>macrourum</i>		45	Avdulov 1931	Fo	S. Africa
<i>setosum</i>		54	" "	Fo	Trop. America

## PANICUM \* $x = 7, 9, 10$

$x = 7$

<i>reptans</i>		14	Brown 1950	Fo	Tropics
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$x = 9$

<i>antidoteale</i>	& 2 spp.	18	Burton 1942	Fo	Trop. Asia
<i>capillare</i>	Witchgrass	18	Avdulov 1928	Fo	N. America
<i>lanuginosum</i>		18	Brown 1948	Fo	S.E. U.S.A., W.I.
<i>scribnerianum</i>	& 50 spp.	18	" " 1951	Fo	N. America
<i>tuberculatum</i>	& 1 sp.	18	Krishnaswamy 1940	Fo	Trop. Asia
<i>anceps</i>		18	Brown 1948	Fo	N. America
		36	Burton 1942		
<i>boscii</i>		18, 36	Brown 1948	Fo	E: U.S.A.
<i>virgatum</i>	Switch	18, 36, 54,	Nielsen 1944	Fo	N. & C. Ame.
	Grass	72, 90, 108	Brown 1948		
<i>amarum</i>		36	" "	Fo	E: U.S.A., W.I.
<i>bisulcatum</i> ( <i>acroanthum</i> )		36	Avdulov 1931	Fo	E. Asia
		54	de Wet 1954b		
<i>deustum</i>		36	" "	Fo	S. Africa
<i>fasciculatum</i>	Browntop Millet	36	Burton 1942	Fo	Trop. America
<i>purpurascens</i>	Para Grass	36	" "	Fo	Tro. Afr. (Amer.)
<i>miliaceum</i>	Indian Millet	36	Avdulov 1931	G	<i>cult</i> , India
	Proso M.	(72)	Arenkova 1940	Fo	
<i>miliare</i>	Little M.	36	Rau 1929a	FoG	Trop. Asia
<i>urvilleanum</i>	& 7 spp.	36	Parodi 1946	Fo	Cal., Arg., Chile
<i>verrucosum</i>	& 3 spp.	36	Brown 1948	Fo	E: U.S.A.
<i>texanum</i>	Texas M.	36	" 1950	Fo	Temp. America
		54	Burton 1942		

# **PANICUM** (cont.)

<i>maximum</i>	Guinea Grass	{ 18 36 32, 48	de Wet 1954b E.K.J.* Warmke 1951	FoT	Trop. Africa
<i>esculentum</i>		54, 58	Krishnaswamy 1940	Fo	Japan ( <i>cult</i> )
<i>fulum</i>		54	Parodi 1946	—	S. America
<i>jubiflorum</i>		54	Burton 1942	—	Australia
<i>psilopodium</i>		54	Ramanathan 1950	—	India
<i>plenum</i>		54	Brown 1951	—	Tex., Ariz., Mex.
<i>bulbosum</i>		{ 54, 72 70	" " Krishnaswamy 1940	Fo	" "
<i>x</i> = 10					
<i>hians</i>		20	Brown 1951	Fo	S: U.S.A.
<i>milioides</i>		20	Parodi 1946	—	N. America
<i>prionitis</i>		20	" "	—	Brazil
<i>elephantipes</i>		30	Covas 1949b	—	"
<i>obtusum</i>	Vine-Mesquite	20, 40	Brown 1951	Fo	S: U.S.A., Mex.
<i>geminatum</i>		40	" "	—	Trop., Sub-trop.
<i>laxum</i>	Woodland G.	40	Warmke <i>et al.</i> 1946	Fo	Trop. America
<i>repens</i>		40	Krishnaswamy 1940	FoSb	Sub-tropics
<i>teneriffae</i>		40	" "	—	Medit., S.W. Asia
"makarikari"		44	Moffett & H. 1949	Fo	S. Africa
<i>altissimum</i>		60	Krishnaswamy 1940	—	Guiana
<b>UROCHLOA</b> <i>x</i> = 7, 9, 15					
<i>trichopus</i>		14	P. T. Thomas unp.	FoG	Sudan
<i>pullularis</i>		28	Moffett & H. 1949	—	E. Trop. Africa
<i>mosambicensis</i>		42	" "	—	Mozambique
<i>bolbodes</i>		36	" "	—	Abyssinia
<i>panicoides</i>		{ 36 30	" " de Wet 1954b	Fo	O.W. Tropics
<i>brachyura</i>		30	" "	Fo	S. Africa
<b>BRACHIARIA</b> <i>x</i> = 7, 9					
<i>marlothii</i>		14	P. T. Thomas unp.	—	S. Africa
<i>comata</i>		28	" "	—	Abyssinia
<i>eruciformis</i>		18	Avdulov 1931, E.K.J.*	Fo	Tr. Afr. & Asia
<i>ciliatissima</i>		36	Brown 1951	Fo	Ark., Texas
<i>decumbens</i>		36	Zerpa 1952	Fo	Trop. America
<i>distachya</i>		36	Krishnaswamy 1940	Fo	Trop. Asia, Austr.
<i>extensa</i>		36	Parodi 1946	—	S.E: U.S.A., W.I.
<i>nigropedata</i>		{ 18 36	de Wet 1954b Moffett & H. 1949	—	S. Africa
<i>paspaloides</i>		36	E.K.J.*	Fo	Trop. Asia
<i>serrata</i>		36	Moffett & H. 1949	Fo	S. Africa
<i>viridula</i>		36	" "	—	E. & C. Trop. Afr.
<i>dictyoneura</i>		42	" "	—	Trop. Africa
<i>brizantha</i>	Large-seeded P.	54	" "	FoH	Trop. & S. Africa
<b>AMPHICARPUM</b> <i>x</i> = 9					
<i>purshii</i>		18	Brown 1948	—	E: U.S.A.
<b>ANTHEPHORA</b> <i>x</i> = 9					
<i>hermaphrodita</i>		18	Avdulov 1928	Fo	Trop. America
<i>as elegans</i>		18	Mimeur 1950		

<b>SPINIFEX</b> $x = 9$					
<i>littoreus</i>		18	E.K.J.*	Sb	India—Malaya
<b>SETARIA</b> $x = 9, 19$					
<i>flabellata</i>		18	de Wet 1954b	—	S. Africa
<i>italica</i>	Italian Millet	18	Avdulov 1928	G	<i>cult</i> , China
<i>longiseta</i>		18	Moffett & H. 1949	Fo	Trop. Africa
<i>viridis</i>	Green Bristle G.	18	Tateoka 1954	Fo	Cosmop.
<i>pallidifusca</i>	Kavatta G.	{	18 Krishnaswamy & A. 1935b	FoG	O.W. Tropics
<i>(glauc)</i>			36 Moffett & H. 1949		
<i>verticillata</i>	Bur B. G.	{	18 de Wet 1954b	FoG	Cosmop.
			36 Avdulov 1931		
<i>faberi</i>		36	Kishimoto 1938	—	China
<i>intermedia</i>		36	Krishnaswamy & R. 1949	—	Cosmop.
<i>magna</i>	Giant B. G.	36	Brown 1948	Fo	E: U.S.A., W.I.
<i>phragmitoides</i>		36	Moffett & H. 1949	—	Trop. & S. Africa
<i>plicata</i>		36	Avdulov 1928	Fo	Trop. Asia
<i>glauc</i>	Yellow B. G.	{	36 " 1931	Fo	Eur., Temp. Asia
<i>(lutescens)</i>			72 Brown 1948		
<i>sphacelata</i>	Rhodesian Tim.	36, 54	Moffett & H. 1949	Fo	Trop. Africa
<i>chevalieri</i>	Buffel Grass	54	" "	FoT	" "
<i>palmifolia</i>		54	Krishnaswamy <i>et al.</i> 1954	H	India
<i>splendida</i>		63	Moffett & H. 1949	Fo	Trop. & S.E. Afr.
<i>geniculata</i>		72	Brown 1948	—	America
<i>macrostachya</i>		72	" 1950	—	S.W: U.S.A., Mex.
<i>chondrachne</i>		38	Ono & T. 1953	—	Tropics
<b>TRICHACHNE (PANICUM)</b> $x = 9$					
<i>californica</i>	Cottontop	{	18 Krishnaswamy 1940	Fo	S.W: U.S.A., Mex.
			36 Brown 1951		
<i>insularis</i>	Sourgrass	36	" "	—	S: U.S.A.—Arg.
<i>patens</i>		72	" "	—	Texas
<b>ACROCERAS</b> $x = 9$					
<i>macrum</i>		36	Moffett & H. 1949	—	Trop. & S. Afr.
<b>ALLOTEROPSIS</b> $x = 9$					
<i>semialata</i>		54	Moffett & H. 1949	—	O.W. Tropics
<b>CHLORIDION</b> $x = 9$					
<i>cameronii</i>		54	Moffett & H. 1949	—	Trop. Africa
<b>ECHINOCHLOA</b> $x = 9$					
<i>cruspavonis</i>		36	Parodi 1946	Fo	Trop. & Sub-tr.
		36	Brown 1948		
<i>crusgalli</i>	Cockspur G.	{	42 Church 1929b	FoG	N. Temp.
			48 Rau 1929		
		54	Tateoka 1954		
		36	Brown 1950		
<i>colona</i>	Jungle Rice	{	48 Krishnaswamy & R. 1949	FoG	Trop. & Sub-tr.
			54 de Wet 1954b		
		72	E.K.J.*		

# ECHINOCHLOA (cont.)

<i>frumentacea</i>	Jap. Barny. M.	{ 36	Hunter 1934	FoG	Trop. Asia
		56	Church 1929b		
<i>stagnina</i>		54	Krishnaswamy & R. 1949	AFoG SuT	Tr. Afr. & Asia
<i>pyramidalis</i>	Antelope G.	72	Parodi 1946	FoGT	„ „

## ERIOCHLOA $x = 9$

<i>contracta</i>	Prairie Cupgrass	36	Brown 1950	Fo	S: U.S.A.
<i>montevicensis</i>		36	Parodi 1946	—	Argentine
<i>sericea</i>		54	Brown 1951	Fo	Tex., Oklah.
<i>villosa</i>		54	Tateoka 1954	Fo	E. Asia

## LASIACIS $x = 9$

<i>divaricata</i>	Tibisee	36	Parodi 1946	Fo	Trop. America
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## LEPTOLOMA $x = 9$

<i>cognatum</i>		36, 72	Brown 1951	Fo	E. & S: U.S.A.
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## MELINIS $x = 9$

<i>minutiflora</i>	Molasses G., Efwatakala G.	36	Avdulov 1931	Fo	Tr. Afr. & Amer.
<i>macrochaeta</i>		36	Moffett & H. 1949		Trop. Africa

## PASPALIDIUM (PANICUM) $x = 9$

<i>paludivagum</i>		36	Burton 1942	Fo	E: U.S.A.
<i>jubiflorum</i>		54	„ „	Fo	Australia

## OPLISMENUS $x = 9$

<i>undulatifolius</i>		54	Avdulov 1931		S. Eur.—E. Asia
<i>compositus</i>	Basket Grass	72	„ „	H	Tropics
<i>as burmannii</i>		72	„ „		
<i>setarius</i>		c. 72	Brown 1948		S.E: U.S.A., Tr. America

## TRICHOLAENA $x = 9$

<i>monachne</i>		36	de Wet 1954b	Fo	S. Africa
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## RHYNCHELYTRUM (TRICHOLAENA) $x = 9$

<i>minutiflorum</i>		36	Moffett & H. 1949	—	Trop. Africa
<i>nyassanum</i>		36	„ „	—	Nyasaland
<i>repens (rosea)</i>	Natal Grass	36	de Wet 1954b	FoH	Trop. Africa
<i>setifolium</i>		36	Moffett & H. 1949	—	S. Africa

## SACCIOLEPIS $x = 9$

<i>angusta</i>		18	Tateoka 1954		O.W. Tropics
<i>glauescens</i>		36	Moffett & H. 1949		Mashonaland
<i>striata</i>		36	Brown 1948		E: U.S.A., W.I.

## STENOTAPHRUM $x = 9$

<i>secundatum</i>	St. Augustine G.	{ 18	Brown 1950,		
		18	Warmke <i>et al.</i> 1946	H	S.E: U.S.A.
		20!	Brown 1948		

## DIGITARIA (PANICUM) $x = 9, 15, 17$

<i>brazzae</i>		18	Moffett & H. 1949		Trop. Africa
<i>chinensis</i>		18	Ono & T. 1953		China
<i>didacryla</i>	Blue Couch	18	E.K.J.*	Fo	Mauritius, Austr.

# **DIGITARIA (cont.)**

<i>eriantha</i>	Woolly Finger-G.	{ 18	Moffett & H. 1949	Fo	S. Africa
<i>gazensis</i>		40	de Wet 1954b		
<i>milanjiana</i>		18	Moffett & H. 1949		Gazaland
<i>smutsii</i>		18	" "		Trop. Africa
<i>swazilandensis</i>		18	Ramanathan 1950		Transvaal
		18	Moffett & H. 1949		Swaziland
<i>filiformis</i>		36	Brown 1948	Fo	E: U.S.A.
<i>horizontalis</i>		{ 36	Avdulov 1928	Fo	Tropics
		30	P. T. Thomas unp.		
<i>ischaemum</i>	Smooth Crabgr.	36	Brown 1948	Fo	Eurasia
		34	P. T. Thomas unp.		
<i>sanguinalis</i>	Crabgrass	{ 36-48	Brown 1948	FoG	Sub-tropics
		54	Covas & S. 1947		
<i>pentzii</i>		{ 36	Burton 1942	Fo	S. Africa
		54	Moffett & H. 1949		
<i>adusta</i>		72	Parodi 1946	—	Brazil
<i>marginata</i>		72	Ramanathan 1950	Fo	Tr. Asia & Afr.
<i>timorensis</i>		72	E.K.J.*	Fo	Trop. Asia
<i>exilis</i>	Fundi	54	Hunter 1934	FoG	W. Africa
<i>valida</i>		30	de Wet 1954b	Fo	S. Africa
<i>decumbens</i>		30	Burton 1942	Fo	
<i>polevansii</i>		34	" "	Fo	
<i>longiflora</i>		34	P. T. Thomas unp.		Trop. Africa

# **CENCHRUS x = 9, 17**

		34	E.K.J.*		
<i>ciliaris</i>	(Apo.)	36	Moffett & H. 1949	Fo	Trop. & S. Africa
		32, 36, 40, 54	Fisher <i>et al.</i> 1954		India
<i>pauciflorus</i>	Field Sandbur	36	Brown 1948	Fo	America
<i>mysuroides</i>		{ 54	" 1950	SbFo	Trop. America
		70	Avdulov 1931		
<i>brownii (inflexus)</i>		34		Fo	Austr., Tr. Amer.
<i>echinatus</i>	Hedgehog G.	34		Fo	Trop. America
<i>setigerus</i>	(Apo.) Anjan G.	{ 34	E.K.J.*	Fo	N.E. Tr. Afr.—
		36	Fisher <i>et al.</i> 1954		India
<i>tribuloides</i>	Dune Sandbur	34	Brown 1948	Sb	E: N. & Tr. Am.

# **OPLISMENOPSIS x = 10**

<i>najada</i>		20	Parodi 1946		Uruguay
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# **LEPTOCORYPHIUM x = 10**

<i>lanatum</i>		40	Parodi 1946		Mexico
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# **AXONOPUS x = 10**

<i>iridaceus</i>		20	Parodi 1946	—	S. America
<i>furcatus</i>		40	Brown 1950	Fo	E: U.S.A.
<i>compressus</i>	Carpet Grass	{ 40	E.K.J.*	FoH	Trop. America
		c. 60	Parodi 1946		
<i>affinis</i>		80	Brown 1948	Fo	S: U.S.A.

# **ISACHNE x = 10**

<i>globosa</i>		60	Tateoka 1954	—	Australia
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# **PASPALUM\* x = 10, 12**

<i>ciliatifolium</i>		20	Burton 1940	Fo	E: U.S.A., W.I.
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# PASPALUM (cont.)

<i>gayanum</i>		20	Saura 1943	Fo	Argentina
<i>haumanii</i>		2C	" 1941	Fo	
<i>paniculatum</i>		20	Burton 1940	Fo	Tr. Amer. & Afr.
<i>racemosum</i> ( <i>stoloniferum</i> )		20 + 1-3B	Avdulov & T. 1933	FoH	Peru, Ecuador
<i>rufum</i>		20	Saura 1948a	—	Brazil
<i>supinum</i>		20	Burton 1942	Fo	S.E: U.S.A.
<i>thunbergii</i>		{ 20	Moriya & K. 1949a	—	O.W. Tropics
		{ 40	Tateoka 1954		
<i>vaginatum</i>		20	Brown 1948	Fo	N. America
<i>notatum</i>	Bahia G.	20, 40	Saura 1948a	Fo	Trop. America
<i>plicatulum</i>		{ 20	Brown 1950	Fo	S.E: U.S.A.—Arg.
		{ 40	Saura 1941		
<i>praecox</i>		20, 40	Brown 1948	Fo	S.E: U.S.A.
		20	Saura 1941		
<i>quadrifarium</i>		{ 30	Burton 1942	Fo	Argentina
		{ 60	Krishnaswamy 1940		
<i>boscianum</i>	Bull P.	40	Burton 1940	Fo	E: U.S.A.—Brazil
<i>commune</i>	& 11 spp.	40	Saura 1941, '43, '48a	Fo	Argentina
<i>commersonii</i>		40	Moffett & H. 1949	—	O.W. Tropics
<i>conjugatum</i>	Sour G.	40	E.K.J.*	FoH	Tropics
<i>dissectum</i>		40	Brown 1951	Fo	E: U.S.A.
<i>laeve</i>		40	" 1948	Fo	E: "
<i>lanceolatum</i>		40	Krishnaswamy 1940	—	S. America
<i>longifolium</i>		40	E.K.J.*	Fo	Tr. Asia & Austr.
<i>malacophyllum</i>		40	Burton 1940	Fo	Brazil
<i>pauciciliatum</i>		40	Parodi 1946	—	S. America
<i>scrobiculatum</i>	Koda M.	40	Avdulov 1928	FoG	cult, India
<i>setaceum</i>		40	Brown 1948	Fo	E: U.S.A., Mex.
<i>dilatatum</i>	Dallis G.	{ 40	Brown 1948	FoH	S. America
	Large Water G.	{ 50?	Krishnaswamy 1940		
<i>distichum</i>	Knotgrass, Water Couch	{ 40	Brown 1948	SbFo	Sub-Tropics
		{ 48	Burton 1942		
		{ 60	Parodi 1946		
<i>langei</i>		{ 40	Brown 1951	Fo	S.E: U.S.A., W.I. Venezuela
		{ 60	Burton 1942		
<i>urvillei</i>	Vasey Grass	{ 40, 60	Brown 1950	FoTo	S: U.S.A.—Arg.
		{ 40, 60	Nielsen 1939		
<i>longipilium</i>		60	Burton 1942	Fo	E: U.S.A.
<i>pubescens</i>		60	Brown 1948	Fo	"
<i>pubiflorum</i>		60	" 1951	Fo	S.E: U.S.A., Mex., Cuba
<i>epile</i>		80	Saura 1941	Fo	E: U.S.A., C. Am.
<i>virgatum</i>	Cortadero	80	Avdulov 1931	Fo	S. Tex.—S. Amer.
<i>giganteum</i>		120	Burton 1942	Fo	S.E: U.S.A.
<i>floridanum</i>		120, 160	Brown 1950	Fo	E. & S: U.S.A.
<i>almum</i>	Coomb's Pasp.	24	Burton 1942	Fo	Tex., S. America

## TRIBE IV: ARUNDINELLEAE

### DANTHONIOPSIS x = 9

<i>dinteri</i>	18	de Wet 1954a	—	E. Africa
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**ARUNDINELLA**  $x = 10, 14$

<i>setosa</i>	20	Ramanathan 1950	—	Nepal
<i>hirta</i>	28	Moriya & K. 1949a	—	Japan
	56	Tateoka 1954	—	

**TRISTACHYA**  $x = 10, 12$

<i>welwitschii</i>	40	Moffett & H. 1949	—	Trop. Africa
<i>hispida</i>	24	de Wet 1954a	Fo	S. Africa

**LOUDETIA**  $x = 10, 12$

<i>simplex</i>	60	Moffett & H. 1939	FoT	Trop. & S. Afr
<i>flavida</i>	24	de Wet 1954a	—	S. Africa

**TRIBE V: ERAGROSTEAEE**

**TRIODIA (TRIDENS) \***  $x = 8$

<i>pilosa</i>	16	Covas 1945,		
	16	Brown 1950	Fo	S: U.S.A., Mex.
<i>texana</i>	16	" "		Texas, Mexico
<i>elongata</i> & 4 spp.	32	" "	Fo	S: U.S.A.

**ELEUSINE**  $x = 9$

<i>tristachya</i>	18	Avdulov 1928	Fo	S. America
<i>oligostachya</i>	18	Krishnaswamy 1940	Fo	Brazil
<i>indica</i> Goose Grass	18	Avdulov 1931, E.K.J.*	FoG	Trop., Sub-Trop.
	36	Moffett & H. 1949		
<i>lagopoides (brevifolia)</i>	36	Krishnaswamy & A. 1935c	Fo	India
<i>coracana</i> Ragi, Finger Mil.	36	Avdulov 1931	ASuFoG	cult, Abyssinia
<i>v. tocusua</i>	39?	Krishnaswamy 1940		
<i>compressa (flagellifera)</i>	45	" "	Fo	W. Asia, Tr. Afr.

**AELUROPUS**  $x = 10$

<i>littoralis</i>	20	Avdulov 1933	Sb	Medit.
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**TETRACHNE**  $x = 10$

<i>dregei</i>	20	Moffett & H. 1949	—	S. Africa
<i>andropogonoides</i>	20	de Wet 1954b	Fo	S. Africa

**LEPTOCHLOA**  $x = 10$

<i>filiformis</i> Red Sprangletop	20	Brown 1950	—	S: U.S.A., Tr.Am
<i>neesii (polystachya)</i>	20	Avdulov 1928	Fo	Australia
<i>obtusiflora</i>	20	E.K.J.*	Fo	E. Afr., India
<i>chinensis</i>	40	Avdulov 1928	Fo	Trop. Asia
<i>virgata</i>	40	Parodi 1946	—	S: U.S.A., Tr. Am
<i>dubia</i> Sprangletop	60	Brown 1950	Fo	S: U.S.A., Mex. Argentina

**ERAGROSTIS \***  $x = 10$

<i>aspera</i> & 7 spp.	20	Moffett & H. 1949	Fo	Tr. & S. Afr., Ind
<i>cambessediana</i>	20	Hagerup 1932	—	Trop. Africa
<i>ciliensis</i> Sterile Grass	20	Moffett & H. 1949	FoG	Trop., Sub-Trop.
<i>japonica</i>	20	Avdulov 1928	Fo	Trop. Asia, Austr
<i>albida</i>	40	Hagerup 1932	Fo	Sudan

# ERAGROSTIS (cont.)

<i>bifaria</i>	40	E.K.J.*	Fo	Trop. Asia
<i>brownii</i>	40	"	Fo	Trop. Asia, Austr.
<i>beyrichii</i>	40	Brown 1950	—	S: U.S.A.
<i>chariis (gangetica)</i>	40	E.K.J.*	Fo	Trop. Afr. & Asia
<i>curtipedicellata</i>	40	Brown 1951	—	S: U.S.A.
<i>curvula</i>	{ 40	Nielsen 1939	H	S. Africa
	50	de Wet 1954b		
<i>echinochloidea</i> & 7 spp.	40	Moffett & H. 1949	Fo	"
<i>superba</i> & 3 spp.	40	de Wet 1954b	Fo	S. Africa
<i>pilosa</i> Ind. Love G. & 2 spp.	40	Ono & T. 1953	Fo	Temp.
<i>secundiflora</i>	40	Brown 1950	—	S: U.S.A.
<i>sessilisipica</i>	40	Nielsen 1939	—	"
<i>spectabilis</i> Purp. Lovegrass	{ 40	"	Fo	S: U.S.A., Mex.
	42	Nielsen & H. 1937		
<i>spicata</i>	40	Brown 1950	—	Calif., Tex., Arg., Paraguay
<i>capensis</i>	{ 40	Avdulov 1928	Fo	S. Africa
	60	Moffett & H. 1949		
<i>tef (abyssinica)</i> Tef Grass	40	" "	FoG	cult, Abyssinia
<i>barrelieri</i>	60	" "	—	Medit., N. Afr.
<i>mexicana</i> Mex. Lovegrass	60	Avdulov 1928	Fo	Texas, Arizona
<i>habrantha</i>	60, 90	Moffett & H. 1949	Fo	Trop. Africa
<i>linearis (pallescens)</i>	80	Hagerup 1932	Fo	W. Africa
<i>ferruginea</i>	80	Tateoka 1954	Fo	Japan

# DIPLACHNE x = 10

<i>dubia</i>	40	Covas 1949b	Fo	Argentina
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# CLEISTOGENES (DIPLACHNE) x = 10

<i>serotina</i>	40	Avdulov 1931		S. Eur.—C. Asia
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# POGONARTHRIA x = 10

<i>squarrosa</i>	{ 40	de Wet 1954b	—	S. Africa
	40, 42	Moffett & H. 1949		

# DACTYLOCTENIUM (ELEUSINE) x = 10, 12

	{ 20	P. T. Thomas unp.		
	36	Moffett & H. 1949		
<i>aegyptium</i> Crowfoot Gr.	48	Avdulov 1931, E.K.J.*Fo		Trop., Sub-Trop.
	34?	Krishnaswamy & A. 1935c		
<i>scindicum</i>	48	Krishnaswamy & A. 1940	Fo	India

## TRIBE VI: SPOROBOLAE

# CRYPISIS (HELEOCHLOA) x 8, 9

<i>aculeata</i>	{ 16	Polyá 1948	Fo	Europe
	54	Stebbins, Myers 1947		
<i>schoenoides</i>	36	Avdulov 1931	Fo	Medit., Temp. As

# MUHLENBERGIA x 9, 10, 21

<i>filiformis</i>	18	Stebbins, Myers 1947	—	W: N. America
<i>andina</i> Foxtail Muhly	20	" " "	—	

# MUHLENBERGIA (cont.)

<i>asperifolia</i>	Scratchgrass	20	Stebbins, Myers, 1947	—	N. Amer., Temp. S. America
<i>lindheimeri</i>		20	Brown 1950	—	Texas
<i>polycaulis</i>		20	" 1951	—	Tex., Ariz., Mex.
<i>porteri</i>	Bush M.	20	" "	—	S.W: U.S.A., Mex.
<i>brachyphylla</i>		40	" 1950	—	C: U.S.A.
<i>emersleyi</i>	Bullgrass	40	" "	Fo	Tex., Ariz., Mex.
<i>mexicana</i>	Wire-Stem M.	40	Avdulov 1931	—	E: N. America
<i>monticola</i>	Mesa M.	40	Brown 1951	—	Tex., Ariz., Mex.
<i>racemosa</i>	Marsh Muhly	40	Avdulov 1931	Fo	N. America
<i>reverchoni</i>		40	Brown 1951	—	Texas
<i>rigens</i>	Deer Grass	40	Stebbins & L. 1941	Fo	Tex., Calif., Mex.
<i>squarrosa</i>	Mat M.	40	" " "	Fo	N. America
<i>sylvatica (umbrosa)</i>		40	Avdulov 1931	Fo	E: N. America
<i>pungens</i>		{ 42	Nielsen & H. 1937	Fo	S: U.S.A.
		{ 60	Nielsen 1939	Fo	
<i>repens</i>	Creeping M.	60	Brown 1951	—	Texas, Arizona
<i>hugelii</i>		42	Ono & T. 1953	Fo	Himalayas
<i>japonica</i>		42	" "	Fo	Japan

# SPOROBOLUS x = 9, 10, 12

x = 9

<i>fimbriatus</i>		18	Moffett & H. 1949	—	S. Africa
<i>virginicus</i>		18	Brown 1950	—	S.E: U.S.A., W.I., Brazil
<i>indicus</i>		{ 18, 36	Avdulov 1931	Fo	Tropics
		{ 24	Warmke <i>et al.</i> 1946	Fo	
<i>cryptandrus</i>	Sand Dropseed	{ 18	Nielsen 1939	FoG	N. America
		{ 36	Brown 1950	FoG	
<i>capensis</i>		{ 18	de Wet 1954b	—	S. Africa
		{ 36	Moffett & H. 1949	—	
<i>diander</i>		36	Avdulov 1928	Fo	Tr. Asia & Austr.
<i>elongatus</i>		36	Ono & T. 1953	Fo	Australia
<i>neglectus</i>		36	Brown 1950	—	U.S.A.
<i>poiretii</i>	Smut Grass	36	Avdulov 1931	Fo	Trop As. ( <i>intr.</i> America)
<i>wrightii</i>	Sacaton	36	Brown 1950	Fo	Tex., Calif., Mex.
<i>asper</i>		54, 108	" "	—	U.S.A.
<i>heterolepis</i>	Prairie Dropseed	72	Nielsen 1939	—	E. & C: U.S.A.
<i>airoides</i>	Alkali D'seed	{ 108	Brown 1951	Fo	W: N. America
	Bunchgrass	{ 126	Stebbins & L. 1941	Fo	

x = 10, 12

<i>tremulus</i>		20	E.K.J.*	Fo	E. Asia
<i>japonicus</i>		40	Ono & T. 1953	Fo	China, Japan
<i>tenuissimus</i>		40	Hunter 1934	Fo	Tropics
<i>panicoides</i>		24	Moffett & H. 1949	—	Abyssinia
<i>wallichii</i>		24	E.K.J.*	Fo	Trop. Asia
<i>pyramidalis</i>	Rat's Tail G.	24, 30	Moffett & H. 1949	FoGHT	Trop. Africa

# LYCURUS x = 10, 14

<i>phleoides</i>	Texas Timothy,	{ 28	Brown 1951	Fo	S.W: U.S.A.—
	Wolftail	{ 40	Avdulov 1931	Fo	Argentina

TRIBE VII: ZOISIEAE

<b>HILARIA</b> $x = 9$					
<i>mutica</i>	Tobosa G.	36	Brown & C. 1951	Fo	Tex., Ariz., Mex.
<i>belangeri</i>	Curly Mes.	36, 72	„ „	Fo	
<b>TRAGUS</b> $x = 10$					
<i>berteronianus</i>		20	Brown 1950	—	Medit.—Afghan.
<i>racemosus</i>		40	de Wet 1954b	Sb	Medit., N. & S. Africa
<b>PEROTIS</b> $x = 10$					
<i>patens</i>		40	Moffett & H. 1949	Fo	Natal
<b>ZOYSIA</b> $x = 10$					
<i>japonica</i>	Korean Lawn G.	40	Forbes 1952	H	Korea, Japan
<i>matrella</i>	Manila G.	40	„ „	HSb	S.E. As., S. Austr.
<i>tenuifolia</i>	Mascarene G.	40	„ „	H	S.E. Asia

TRIBE VIII: CHLORIDEAE

<b>BECKMANNIA</b> $x = 7$					
<i>erucaeformis</i>	Slough G.	14	Avdulov 1931	Sb	S. Eur., W. Asia
<i>syzigachne</i>	American S. G.	14	Nielsen & H. 1937	FoSb	E. Asia, N. Amer.
<b>BOUTELOUA</b> $x = 10$ (Apomixis)					
<i>chondrosioides</i>		{ 14? 20	Brown 1950 Freter & B. 1955	Fo	Tex., Ariz., Mex.
<i>filiformis</i>	Slender	{ 14? 20, 21, 22	Brown 1950 Snyder & H. 1953	Fo	
<i>heterostega</i>		20	„ „ „	Fo	W. Indies
<i>radicosa</i>		20	Freter & B. 1955	Fo	Calif., Mex.
<i>uniflora</i>		20	„ „ „	Fo	Tex., Mex.
<i>rothrockii</i>		22	Fults 1942	Fo	Ariz., Calif., Mex.
<i>breviseta</i>		{ 21 28	Brown 1950	Fo	Texas, Mexico
<i>eriopoda</i>	Black Grama	{ 21 28	Fults 1942 Brown 1950	Fo	S.W.: U.S.A., Mex.
<i>hirsuta</i>	Hairy Grama	{ 21, 37, 42 28	Fults 1942 Brown 1951	Fo	
<i>trifida</i>		28	„ 1950	Fo	U.S.A., Mexico
<i>rigidiseta</i>		{ 28 35	„ „	Fo	S: U.S.A.
<i>gracilis</i>	Blue Grama	{ 28, 35, 42, 61, 77 } 20, 40, 60, 42, 84	Fults 1942 „ „ Snyder & H. 1953	Fo	S.W.: U.S.A., Mex.
<i>as oligostachya</i>		50	Avdulov 1931		W. & C: U.S.A., Mexico
<i>curtipendula</i>	Side-oats Grama	{ 28, 35, 40, 42, 56, 70 } 85-101	Fults 1942 Harlan 1949	Fo	U.S.A.—Arg.
	(sex.)	40, 52	Freter & B. 1955		
<i>simplex</i>	(apo.) Mat Grama	74, 80, 82, 86, 96 40	„ „ „ Covas 1945	Fo	S: U.S.A.—Arg.
<b>SPARTINA</b> $x = 7$					
<i>patens</i>	Salt Meadow C.G.	28	Church 1936	Sb	E: N. America
<i>v. juncea</i>		42 56	„ 1940		

# SPARTINA (cont.)

<i>pectinata</i>	Prairie C. G.	28	Church 1929a	SbT	N. America
as <i>michauxiana</i>		42, 84	" 1940		
<i>bakeri</i>		42	" "	Sb	S.E: U.S.A.
<i>caespitosa</i>		42	" "	Sb	"
<i>cynosuroides</i>	Big Cord G.	42	" "	Sb	"
<i>gracilis</i>	Alkali C. G.	42	" "	Sb	W. & C: U.S.A
<i>leiantha</i>		56	" "	Sb	California
<i>maritima</i> (stricta)		56	Huskins 1930	Sb	Europe
<i>alterniflora</i>	Smooth C. G.	56	Church 1940	Sb	E: N. America
v. <i>pilosa</i>		70	Huskins 1930		(Eur., intr.)
<i>townsendii</i>	Rice G.	126	" "	SbT	S. England, cult
( <i>alterniflora</i> × <i>maritima</i> )					

# CRASPEDORACHIS x = 9

<i>rhodesiana</i>		27	Moffett & H. 1949	—	Trop. Africa
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# CYNODON x = 9, 10

<i>bradleyi</i>		18	Hurcombe 1946	—	S. Africa
<i>diploideum</i>	Giant Star G.	18	E.K.J.*	Fo	Trop. Africa
<i>hirsutus</i>		18	Covas 1949b	—	S. Africa
<i>plectostachyum</i>	E. Afr.	18	Sampath & R. 1949	Fo	E. Africa
	Star G.	18, 54	Moffett & H. 1949		
		36	Brown 1950		
<i>dactylon</i>	Bermuda G.	40	Hurcombe 1947	FoHM	Cosmop.
<i>transvaalensis</i>	Florida G.	20	" "	—	S. Africa
<i>magenisii</i>		30	" "	—	"

# DINEBRA x = 10

<i>retroflexa</i>		20	Avdulov 1931	—	Africa—India
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# TRICHONEURA x = 10

<i>grandiglumis</i>		20	Moffett & H. 1949		S. Africa
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# CHLORIS\* x = 10

<i>distichophylla</i>		20	Krishnaswamy 1940	Fo	S. America
<i>virgata</i>	Sweet G.	20	Moffett & H. 1949		
		26	P. T. Thomas unp.	FoH	Tropics
as <i>caudata</i>		40	Krishnaswamy 1940		
<i>barbata</i>		20	Avdulov 1928	Fo	Tropics
		40	E.K.J.*		
<i>gayana</i>	Rhodes G.	20	Brown 1950	Fo	Trop. & S. Africa
		20, 40	Moffett 1944		
<i>gracilis</i>		30	Krishnaswamy 1940		Tropics
<i>pilosa</i>		30	P. T. Thomas unp.	Fo	Sudan
<i>acuminata</i>		40	Avdulov 1928		S. America
		30	de Wet 1954b		
<i>pycnothrix</i>		36	P. T. Thomas unp.		Trop. Africa
		40	Moffett & H. 1949		
<i>uliginosa</i>		40	Parodi 1946		Argentina
<i>cucullata</i>		40	Avdulov 1928	Fo	Tex., New Mex.
<i>truncata</i>	Star G.	40	" "	Fo	Australia
<i>verticillata</i>	Windmill G.	40	Brown 1950	Fo	C: U.S.A.
	& 3 spp.				
<i>bournei</i>		40	E.K.J.*	Fo	India
		50	Krishnaswamy 1940		

# CHLORIS (cont.)

<i>submutica</i>		{ c. 65 80	Krishnaswamy 1940 Avdulov 1931	Fo	Mexico
ENTEROPOGON $x = 10$					
<i>monostachyos</i>		20	Ramanathan 1950	—	India
SCHEDONNARDUS $x = 10$					
<i>paniculatus</i>	Tumblegrass	30	Brown 1950	Fo	C: U.S.A., Arg.
ASTREBLA $x = 10$					
<i>lappacea</i>		40	Brown 1950	—	Australia
GOUINIA $x = 10$					
<i>latifolia</i>		40	Parodi 1946	—	Argentina
MICROCHLOA $x = 10$					
<i>kunthii</i>		40	Moffett & H. 1949	—	Trop. America
TRICHLORIS $x = 10$					
<i>mendocina</i>		40	Avdulov 1931	H	S: U.S.A., S: S. America
<i>pluriflora</i>		60	Brown 1951		S. Tex., Mex., S: S. America
BUCHLOË $x = ?$					
<i>dactyloides</i>	Buffalo G.	{ 56 60	Nielsen 1939 Avdulov 1931	Fo	Sask.—S. Mex.

## TRIBE IX: PAPPOPHOREAE

ENNEAPOGON $x = 9, 10$					
<i>elegans</i>		20	E.K.J.*	Fo	N.E. Afr.—India
<i>wrightii</i>	Spike Pappus G.	20	Covas 1945	Fo	S.W: U.S.A., Peru, Bolivia
<i>cenchroides</i>		36	P. T. Thomas unp.	Fo	S. Africa
<i>scoparius</i>		36	de Wet 1954b	Fo	
COTTEA $x = 10$					
<i>pappophoroides</i>		20	Covas 1945	Fo	S.W: U.S.A.—Argentina
PAPPOPHORUM $x = 10$					
<i>bicolor</i>		60 (40)	Brown 1950		Tex., Ariz., Mex.
<i>mucronulatum</i>		60	" "	Fo	S. Amer., Mex.

## TRIBE X: ARISTIDEAE

ARISTIDA $x = 11, 12, 19$					
<i>adscensionis</i>		22	Covas & B. 1945	FoT	Tropics
<i>congesta</i>		22	Moffett & H. 1949	—	S. Africa
<i>macilenta</i>		22	" "	—	"
<i>mendocina</i>		22	Covas & B. 1945	—	Chile
<i>meridionalis</i>		22	Moffett & H. 1949	—	S.W. Africa
<i>scabrivalvis</i>		22	" "	—	Trop. Africa
<i>spgazzinii</i>		22	Covas & B. 1945	—	Uruguay
<i>submucronata</i>		22	de Wet 1954b	—	S. Africa

# ARISTIDA (cont.)

<i>depressa</i>	44	E.K.J.*	Fo	India
<i>hamulosa</i>	44	Stebbins & L. 1941	Fo	S.W: U.S.A.- Guatemala
<i>leucophaea</i>	44	Moffett & H. 1949	—	Rhodesia
<i>subulata</i>	44	Covas & B. 1945	—	Argentina
<i>barbicollis</i>	24	de Wet 1954b	—	S. Africa
<i>junciformis</i>	24	" "	—	
<i>canescens</i>	48	" "	—	
<i>rhiniochloa</i>	38	P. T. Thomas unp.	—	Sudan

## TRIBE XI: LEPTUREAE

### PSILURUS $x = 7$

<i>nardoides</i>	14	Avdulov 1931		S. Eur.—Afghan.
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### PHOLIURUS (LEPTURUS) $x = 7$

<i>pannonicus</i>	14	Avdulov 1931		S. Eur., Cauc.
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### PARAPHOLIS (PHOLIURUS) $x = 7, 9?$

<i>strigosa (filiformis)</i>	14	Castro & F. 1946		S. Eur., N. Afr.
<i>incurva</i>	{ c. 32	" "	Sb	W. Eur., Medit.
	36	Avdulov 1931		
	38	Rodrigues 1953		

### MONERMA (LEPTURUS) $x = 13$

<i>cylindrica (subulata)</i>	{ 26	Avdulov 1931	Fo	Medit.—S. Afr.
	52	Hunter 1934		

## TRIBE XII: NARDEAE

### NARDUS $x = 13$

<i>stricta</i>	Mat Grass	26	Avdulov 1928	—	Eur., N. As., Cauc.
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## TRIBE XIII: LYGEEAE

### LYGEUM $x = 20$

<i>spartum</i>	Esparto	40	Ramanujam 1938	T	Medit.
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## TRIBE XIV: AGROSTEAE

### APERA $x = 7$

<i>interrupta</i>		14	Maude 1939		Europe
<i>spica-venti</i>		14	Avdulov 1931		Eur., Siberia

### CHAETURUS $x = 7$

<i>fasciculatus</i>		14	Avdulov 1931		Spain, Portugal
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### CORNUCOPIAE $x = 7$

<i>cucullatum</i>		14	Avdulov 1931		E. Medit.
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### GASTRIDIMUM $x = 7$

<i>ventricosum</i>	Nit Grass	14	Rutland 1941	Fo	W. Eur., Medit.
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<b>LAGURUS</b> $x = 7$					
<i>ovatus</i>	Hare's-tail G.	14	Avdulov 1931	FoH	W. France, Med., Canary Is.
<b>MIBORA</b> $x = 7$					
<i>minima (verna)</i>		14	Avdulov 1931		W. Eur., Greece, Algeria
<b>PHLEUM</b> $x = 5, 7$					
<i>echinatum</i>		10	Ellerström & T. '50		S. Europe
<i>arenarium</i>	Sand Timothy	14	Wulff 1937a	Sb	W. Eur., Medit.
<i>hirsutum (michellii)</i>		14	Nordenskiöld 1937	—	Eur., Cauc.
<i>subulatum</i>		14	Myers 1941	Fo	N. America
<i>nodosum</i>	Cat's tail	14, 21	Nordenskiöld 1941	Fo	N. Temp.
<i>alpinum</i>	Mountain T.	14, 28	Litardiére 1949a	Fo	Arctic, Alpine
<i>commutatum (alpinum)</i>		{ 14, 28	" 1948b	Fo	
			Nordenskiöld 1941		
<i>phleoides (boehmeri)</i>		14 + 0-4B, 28 + 0-2B	Böcher 1950		Eur., N. Afr., Sib., Turkestan
<i>paniculatum (asperum)</i>	Rough T.	28	Avdulov 1928		Eur., S.W. Asia
		42	Myers 1944		
<i>pratense</i>	Timothy	{ (21) (28-84)	Levan 1941 " 1949	Fo	Eur., N. Asia
<b>LIMNODEA</b> $x = 7$					
<i>arkansana</i>		14	Brown 1950	—	S.E. U.S.A.
<b>COLEANTHUS</b> $x = 7$					
<i>subtilis</i>		14	Litardiére 1950	—	Europe
<b>AMMOPHILA (PSAMMA)</b> $x = 7$					
<i>arenaria</i>	Marram Grass	28	Westergaard 1941	Sb	W. Europe
<i>breviligulata</i>	Am. Beach G.	28	Church 1929a	Sb	N. America
<i>baltica</i>	Hybrid M. G.	28, 42	Westergaard 1942	Sb	W. Europe
(A. arenaria × Calamagrostis epigeios)					
<b>AGROSTIS *</b> $x = 7$					
<i>alpina</i>		14	Reese 1952a	—	Europe
<i>biebersteiniana</i>		14	Sokolovskaja 1938	Fo	S. Russia
<i>elegans</i>		14	" "	Fo	S.W. Eur., N. Afr.
<i>juressi</i>		14	Gardé 1952b	—	Spain, Portugal
<i>nebulosa</i>	Cloud Grass	14	Avdulov 1931	FoH	" "
<i>reuteri</i>		14	Björkman 1954	—	" "
<i>salmantica</i>		14	Litardiére 1950	—	" "
<i>setacea</i>	Bristle Bent G.	14	Maude 1940	Fo	W. Europe
<i>truncatula</i>		14	Gardé 1952b	—	Europe
<i>verticillata</i>		14	Brown 1950	—	Temp. O.W.
<i>rupestris</i>		14, 28	Björkman 1954	—	Eur., N. Amer.
<i>trinii</i>		14, 28	Sokolovskaja 1938		
<i>canina</i>	Brown Bent	14, 28, 35, 42, 56	Björkman 1954	H	Temp. Eurasia
<i>castellana</i>		{ 42 28 + 0-3B	Rodrigues 1953 Björkman 1954	—	Spain, N. Afr.
<i>matsumurae</i>		28	Moriya & K. 1949a	—	Japan
<i>mongolica</i>		28	Sokolovskaja 1938	—	Sib., Mong.
<i>rossae</i>		28	Myers 1947	Fo	W: N. America
<i>schraderiana</i>		28	Björkman 1954	—	Alps, Pyrenees
<i>tenuis</i>	Fine Bent	28 (29-41)	Stuckey & B. 1946	FoH	Temp.
<i>stolonifera</i>	Marsh Bent	28, 35, 42 28-46	Björkman 1954 Juhl 1952b	FoH	N. Temp.
<i>as alba</i>		33-42	Stuckey & B. 1946		

# AGROSTIS (cont.)

<i>clavata</i>	& 3 spp.	42	Sokolovskaja 1938	Fo	N. Eurasia
<i>diegoensis</i>	Thin G.	42	Stebbins & L. 1941	Fo	W: N. America
<i>exarata</i>	Spike Redtop	42	" "	Fo	N. America
<i>hallii</i>		42	" "	Fo	California
<i>gigantea</i>	Bl. Bent	42 + 0-4B	Björkman 1954	FoH	North Temp.
<i>hendersoni</i>		42	Stebbins, Beetle '45	Fo	Oregon
<i>nevadensis</i>		42 + 2-10B	Bjorkman 1954	—	Spain
<i>borealis</i>	Arctic Bent	56	" "	Fo	N. & Arctic
<i>lepida</i>		56	Myers 1947	Fo	California
<i>retrofracta</i>		56	" "	Fo	Hawaii, Polyn.

# ALOPECURUS \* $x = 7$

<i>aequalis</i>	Orange Foxtail	14	Johnsson 1941	Fo	N. Temp.
<i>amurensis</i>		14	Strelkova 1938	Fo	Siberia
<i>bulbosus</i>		14	Maude 1940	Fo	W. Eur., Algeria
<i>gerardi</i>		14	Johnsson 1941	Fo	Eur., S.W. Asia
<i>heleochoioides</i>		14	" "	Fo	Chile
<i>mysosuroides</i>	Black Twitch	14	Kattermann 1930	—	Eur., Medit., W Asia
<i>utriculatus</i>		14	Strelkova 1938	Fo	Eur., S.W. Asia
<i>geniculatus</i>	Water F.	28	Avdulov 1928	—	N. Temp.
<i>japonicus</i>		28	Tateoka 1954	—	Japan
<i>ventricosus</i>	& 4 spp.	28	Strelkova 1938	Fo	Eur., N. Asia
<i>pratensis</i>	Mead. F.	28 + 0-2B, 42	Johnsson 1941	Fo	N Temp.
<i>aucheri</i>	& 4 spp.	56	Strelkova 1938	Fo	S.W. Asia
<i>roshevitzianus</i>		70	Avdulov 1931	Fo	Siberia
<i>borealis</i>		98	Strelkova 1938	Fo	N. & Arctic
<i>pseudobrachystachys</i>		98	" "	Fo	Siberia
<i>antarcticus</i>		112-116	Johnsson 1941	Fo	S. America
<i>alpinus</i>	Alpine F.	{ 119-122 112-130	{ " " Flovik 1940	Fo	Arctic
<i>glaucus</i>		{ 130 130	{ S. & S. 1938, Johnsson 1941	Fo	C. Asia

# POLYPOGON $x = 7$

<i>maritimus</i>		14, 28	Gardé 1952b	—	Medit.
<i>monspeliensis</i>	Annual Beard G.	28	Avdulov 1931	FoH	Medit., Abyss., S Africa
<i>semiverticillatus</i>	Water Bent	28	Bjorkman 1954	Fo	Europe
<i>littoralis</i>		28	Rutland 1941	—	Eur., C. Asia
<i>as fugax</i>		42	Avdulov 1931	—	Europe
<i>lutosus</i>		28, 42	Heiser & W. 1948	—	Europe

# CINNA $x = 7$

<i>latifolia</i>	Drooping Woodreed	28	Ehrenberg 1945	Fo	N. Temp
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# CALAMAGROSTIS\* $x = 7$ (Some high polyploids apomictic)

<i>arundinacea</i>		28	Nygren 1946	Fo	N. Temp.
<i>cainii</i>	& 5 hybrids	28	" 1954	—	Tennessee
<i>canescens</i>	Small Reed	28	" 1946	—	Eur., Temp. Asia
<i>koelerioides</i>		28 + 0-2B	" 1954	—	California
<i>lunzsдорffii</i>		28	Tateoka 1954	—	N. & E. Asia

# CALAMAGROSTIS\* (cont.)

<i>longiseta</i>		28	Ono & T. 1953	—	Japan
<i>montanensis</i>		28	Nygren 1954	Fo	C: N. Amer.
<i>neglecta</i>		28	" 1946	Fo	N. Temp.
<i>pseudophragmites</i>		28	Ono & T. 1953	—	Eurasia
<i>varia</i>		28	Nygren 1946	Fo	Eur., N. Asia
<i>breweri</i>	Shorthair	28, 42	" 1954	Fo	California
<i>hakonensis</i>		28, 56	Tateoka 1954	—	Japan
<i>rubescens</i>	Pinegrass	28, 42, 56	Nygren 1954	Fo	W. & C: N. Amer
	Bush	28, 42, 56	" 1946	—	Eur., Temp. Asia
<i>epigeios</i>	Grass	c. 70	Avdulov 1931	—	
<i>inexpansa</i>	N. Reed G.	28, 56, 58, 84-105	Nygren 1954	Fo	Calif., Minn.
<i>chalybaea</i>		42	Nygren 1946	—	Norway
<i>canadensis</i>	Bluejoint	42-66	" 1954	Fo	N. America
<i>purpurascens</i>	Purp. Reed G.	40-57	" "	—	"
<i>lapponica</i>		42-112	" 1946	Fo	N. Temp.
<i>purpurea</i>	(28)	56-91	" 1946, 1949	Fo	N. Eurasia
<i>bolanderi</i>		56	" 1954	—	California
<i>perplexa</i>		70	" "	—	New York
<i>fernaldii</i>		84	" "	—	Maine
<i>porteri</i>		84, 87	" "	—	E: N. Amer.
<i>crassigluma</i>		140	" "	—	W: N. Amer.

# PHIPPSIA x = 7

<i>algida</i>		28	Flovik 1940	—	North & Arctic
		28, 29			

# ARCTAGROSTIS x = ?

<i>latifolia</i>		62	Flovik 1938		Arctic
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# GARNOTIA x = 10

<i>scoparia</i>		20	Ramanathan 1950		India
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## TRIBE XV: PHALARIDEAE

# ANTHOXANTHUM x = 5

<i>alpinum</i>		10	Ostergren 1942	—	Europe
<i>ovatum</i>		10	" "	—	Spain, Mor.
<i>puelii (aristatum)</i>		10	Avdulov 1928	—	Medit.
<i>odoratum</i>	Sw. Vernal G.	10 + 0-4B	Östergren 1947	FoHM	Eur., N. As., Cauc.
		10, 20	" 1942		N. Africa
<i>japonicum</i>		70	Tateoka 1954	—	Japan
<i>amarum</i>		80	Östergren 1942	—	S.W. Europe

# PHALARIS x = 6, 7

<i>canariensis</i>	Canary G.	12	Hansen & H. 1953a	G	N. Afr., Can.
		12	Parthasarathy 1938	Fo	Medit., S.W. Asia
<i>brachystachys</i>		14	Miège 1939	Fo	Argentina
<i>angusta</i>		14	Saura 1943	Fo	Europe
<i>aquatica</i>		14	Gardé 1952b	—	California
<i>lemmoni</i>		14	Parthasarathy 1938	Fo	Medit.
<i>paradoxa</i>		14	Hansen & H. 1953a	Fo	S: U.S.A.
<i>caroliniana</i>		14	Brown 1950	—	

# PHALARIS (cont.)

<i>coerulescens</i>		{ 14 Hansen & H. 1953a 28 Miège 1939	Fo	Medit.
<i>arundinacea</i>	Reed Grass	{ 14, 28 Church 1929b 27-31, 35 Hansen & H. 1953a 42 Brock unp.	FoH	N. Temp.
<i>californica</i>		28 Stebbins & L. 1941	Fo	California
<i>minor</i>		28, 29 Hansen & H. 1953a	Fo	Medit., N. Asia
<i>tuberosa</i>	Toowoomba C.G.	28 " " "	Fo	Medit.

# HIEROCHLOË $x = 7$

<i>odorata</i>	Holy Grass	{ 28 L. & L. 1948 42 Tateoka 1954 28, 56 Church, Myers 1947	FoH	North & Arctic
<i>occidentalis</i>	Calif. Sweet G.	42	Fo	W: U.S.A.
<i>alpina</i>		56 Flovik 1940	Fo	North & Arctic

## TRIBE XVI: FESTUCEAE

# BRIZA $x = 5, 7$

<i>minor</i>		10 Avdulov 1931	H	S. Eur., Medit.
<i>glomerata</i>		14 Saura 1947	—	Argentine
<i>maxima</i>		14 Kattermannr. 1933	H	Medit.
<i>media</i>	Quaking Grass	14 Avdulov 1931	FoH	Eur., Temp. Asia
<i>elatio</i>	14 + 1-3B	" "	FoH	S.E. Eur., S.W. As.
<i>stricta</i>		28 Saura 1947		Chile
<i>subaristata</i>		28		Argentine

# CATABROSA $x = 5$

<i>aquatica</i>		20 Avdulov 1931	Fo	N. Temp.
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# SCHIZACHNE (MELICA) $x = 5$

<i>purpurescens</i>	False Melic	20 Boyle 1944	Fo	N. Am., N.E. As.
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# DISTICHLIS $x = 5$

<i>spicata</i>	Saltgrass	40 Stebbins & L. 1941		America
<i>stricta</i>	Desert Saltgrass	40 " " "	Fo	N. America
<i>texana</i>		40 Brown 1951		Texas, Mexico

# GLYCERIA $x = 5$

<i>alnasteretum</i>		20 Tateoka 1954	Fo	Asia
<i>lithuanica</i>		20 " "	Fo	N. Eur., Cauc.
<i>borealis</i>		20 Church 1949	Fo	N. America
<i>declinata (cookei)</i>		20 " "	Fo	W. Europe
<i>elata</i>	Tall Manna G.	20 " "	Fo	W: N. America
<i>grandis</i>	American M.G.	20 " "	Fo	N. America
<i>striata (nervata)</i>	Fowl M.G.	20 " "	Fo	
<i>acutiflora</i>		{ 20 Tateoka 1954 40 Church 1949	Fo	E: N. Amer., N.A. Asia
<i>fluitans</i>	Flote-grass, Manna G.	{ 40 Löve 1951 40 Church 1949	FoG	N. Temp.
<i>leptostachya</i>		40 " "	Fo	W: U.S.A.
<i>melicaria</i>		40 " "	Fo	E: N. America
<i>nubigena</i>		40 " "	Fo	Tenn.
<i>obtus</i>		40 " "	Fo	E: N. America
<i>occidentalis</i>		40 " "	FoG	W: N. America

# GLYCERIA (cont.)

<i>ischyoneura</i>	40	Tateoka 1954	Fo	N. Temp.
<i>hulteniana</i>	40	A. Löve 1954	—	Alaska, Yukon
<i>plicata</i>	40	FitzPatrick 1946	Fo	N. Temp.
<i>septentrionalis</i> Eastern M.G.	40	Church 1949	Fo	E: N. America
<i>canadensis</i> Rattlesnake M.G.	60	" "	Fo	" "
<i>maxima</i> Reed Grass	60	" "	Fo	Eurasia
( <i>aquatica</i> )	c. 60	FitzPatrick 1946		

# TORREYCHLOA (GLYCERIA) $x = 7$

<i>erecta</i>	14	Church 1949	Fo	W: N. America
<i>fernaldii</i> ( <i>neogaea</i> )	14	" "	Fo	E: N. America
<i>pallida</i>	14	" "	Fo	" "
<i>pauciflora</i> Weak M. G.	14	" "	Fo	W: N. America
<i>viridis</i> (3x)	21	Tateoka 1954	Fo	Japan

# SPHENOPUS $x = 6$

<i>divaricatus</i>	12	Avdulov 1931	—	Medit.
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# BLEPHARIDACHNE $x = 7$

<i>benthamiana</i>	14	Covas 1945	—	Argentina
<i>bigelovii</i>	14	Brown 1950	—	Texas

# BOISSIERA $x = 7$

<i>pumilio</i> ( <i>bromoides</i> )	14	Avdulov 1931	—	E. Medit.
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# CATAPODIUM $x = 7$

<i>loliaceum</i>	14	Litardière 1950	—	Medit.
<i>patens</i>	14	" "	—	"
<i>tenellum</i>	14	" "	—	"

# CUTANDIA $x = 7$

<i>divaricata</i>	14	Litardière 1950	—	Medit.
<i>maritima</i>	14	" "	—	"
<i>memphitica</i>	14	" "	—	"

# CYNOSURUS $x = 7$

<i>balansae</i>	14	Avdulov 1928	Fo	N. Africa
<i>cristatus</i> Crested Dogstail	14	" 1931	FoH	Eur., Caucas., A Minor
<i>echinatus</i> Rough D.	14	1928		S. Eur., Medit.

# DESMAZERIA $x = 7$

<i>sicula</i>	14	Avdulov 1931		N. & S. Africa
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# LAMARCKIA $x = 7$

<i>aurea</i>	14	Avdulov 1931		Europe
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# DACTYLIS $x = 7$

<i>aschersoniana</i>	14	Müntzing 1937a	Fo	N. Europe
<i>glomerata</i> Cocksfoot	27-30	Myers & H. 1940	Fo	O.W. Temp.
	42 (28-39)	Hanson & H. 1953b		

# LOLIUM $x = 7$

<i>loliaceum</i>	14	Jenkin & T. 1938	Fo	S.E. Eur., S.W. As.
<i>multiflorum</i> Italian Rye-Grass	14	Peto 1933	Fo	Eur., Asia M.
	(28)	Shalygin 1941		

# LOLIUM (cont.)

<i>perenne</i>	Perennial Rye-G.	{ 14, (21) (28)	Müntzing 1937c Myers 1939	FoH	Eur., Temp. Asia, N. Africa
<i>persicum</i>		14	Avdulov 1931	Fo	S.W. Asia
<i>remotum</i>	Annual Rye-G.	14	Jenkin & T. 1938	Fo	Eur., Temp. Asia
<i>rigidum</i>		14		Fo	Eurasia
<i>temulentum</i>	Darnel	14		—	Temp. O.W.
<i>subulatum</i>		14	Myers 1947	Fo	Europe

# SCLEROCHLOA $x = 7$

<i>dura</i>		14	Avdulov 1931		Eur., Asia
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# SCLEROPOA (FESTUCA) $x = 7$

<i>rigida</i>		14	Avdulov 1931		W. Eur., Medit.
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# BROMUS\* $x = 7$

<i>arvensis</i>	Field Brome & 3 spp.	14	Cugnac & S. 1941	—	Eur., N. Asia
<i>brizaeformis</i>	Quaking B.	14	Avdulov 1928	FoH	S.W. Asia
<i>ciliatus</i>	Fringed B.	14	Stählin 1929	Fo	N. America
<i>intermedius</i>		14	Avdulov 1928	—	Medit.
<i>japonicus (abolini)</i>	Jap. B.	14	Moriya & K. 1949a	Fo	Eur., Asia
<i>kalmii</i>	Wild Chess	14	Stählin 1929	Fo	E. & C: U.S.A.
<i>laevipes</i>	& 2 spp.	14	Stebbins & L. 1941	Fo	W: N. America
<i>porteri</i>		14	Myers 1947	Fo	N. America
<i>remotiflorus</i>		14	Moriya & K. 1949a	—	Japan, W: N. A.
<i>suksdorfii</i>		14	Stebbins & T. 1944	Fo	W: U.S.A.
<i>tectorum</i>	Downy B.	14	Knowles 1944	Fo	Europe
<i>vulgaris</i>		14	Stebbins & T. 1944	Fo	W: N. America
<i>anomalus</i>	Nodding B.	{ 14 28	Elliott 1949 Nielsen & H. 1937	Fo	N. America
<i>arduennensis</i>		{ 14 28	Stählin 1929 Cugnac & S. 1941	Fo	Ardenes
<i>ciliatus</i>	Fringed B.	14, 28	Elliott 1949	Fo	N. America
<i>macrostachys</i>		{ 14 28	Stählin 1929 Litardière 1950	—	Medit.
<i>purgans</i>	Canada Brome	14, 28	Elliott 1949	Fo	N. America
<i>ramosus</i>	Hairy B.	14	Stahlin 1929	Fo	Eur., N. Afr., T. Asia
<i>secalinus</i>	Rye Brome	{ 14 28	Nielsen 1939 Knowles 1944	—	Eur., Med., N. As.
<i>commutatus</i>	Smooth B.	14 28 56	Felföldy 1947a Litardière 1950 Nielsen 1939	Fo	Eur., N. Africa
<i>adoensis</i>		28	Cugnac & S. 1941	—	Abyssinia
<i>albidus (biebersteinii)</i>		28	Avdulov 1931	—	S.W. Asia
<i>arenarius</i>	Austr. B.	28	Knowles 1944	Fo	Australia
<i>grossus</i>		28	Cugnac & S. 1941	—	Eur., Med., N. As.
<i>hordeaceus</i>	Soft B.	28		—	Eur., N. Afr., N. Asia
<i>interruptus</i>		28	Maude 1940	Fo	Britain
<i>lepidus</i>		28	" "	Fo	Europe
<i>mollis</i>		28	Knowles 1944	Fo	Eurasia
<i>racemosus</i>	Smooth B.	28		—	"
<i>rubens</i>		28		Fo	W: U.S.A.

# BROMUS (cont.)

<i>texensis</i>		28	Myers 1947	Fo	Texas, Mexico
<i>catharticus</i>	Rescue Grass	{ 28	Moriya & K. 1949a	Fo	N. America
<i>(unioloides)</i>		42	Stebbins & T. 1944		
<i>madritensis</i>	Wall B.	{ 28	Knowles 1944	—	Eur., N. Afr., W Asia
		42	Stählin 1929		
<i>auleticus</i>		42	Elliott 1949	—	Argentina
<i>brevis</i>		42	Covas & S. 1946	—	"
<i>cappadocicus</i>		42	Stählin 1929	Fo	Asia Minor
<i>macrantherus</i>		42	Cugnac & S. 1941	Fo	Eur., Medit.
<i>sitchensis</i>		42	Stählin 1929	Fo	Sitcha Is.
<i>trinii</i>		42	Knowles 1944	Fo	Chile
<i>uruguayensis</i>		42	Stebbins, Myers '47	—	Uruguay
<i>variegatus</i>		42	Stählin 1929	Fo	Cauc., Medit.
<i>erectus</i>	Upright B.	{ 42	" "	Fo	Eur., Asia M.
<i>v. eu-erectus</i>		56	Avdulov 1931		
<i>marginatus</i>		{ 42	Nielsen & H. 1937	Fo	W: N. America
		56	Stebbins & T. 1944		
<i>pumpellianus</i>		{ 42	Stählin 1929	Fo	" "
		56	Elliott 1949		
<i>inermis</i>	Smooth B.	28	Knobloch 1953	Fo	Temp. O.W.
		42, 56	" 1943		
		56 + 0-11B	Hill & M. 1948		
		56 (28)	Elliott 1949		
<i>rigidus</i>	Ripgut Grass	42	Cugnac & S. 1941	Fo	Eur., N. Afr.
<i>(villosus)</i>		56	Stebbins & L. 1941		
		56, 70	Beck & H. 1932		
<i>breviaristatus</i>		56	Stählin 1929	Fo	W: N. America
<i>carinatus</i>	Calif. B.	56	Stebbins & T. 1944	Fo	" "
<i>gussonii</i>	Great B.	56	Cugnac & S. 1941	Fo	" "
<i>maritimus</i>		56	Stebbins & W. 1949	Fo	California
<i>pitensis</i>		56	H. S. Walters 1952	—	Ecuador
<i>riparius</i>		70	Elliott 1949	—	Russia
<i>arizonicus</i>		84	Stebbins <i>et al.</i> 1944	Fo	Arizona

## FESTUCA $x = 7$ (High Polyploids Apomictic)

<i>amethystina</i>		14	Litardière 1950	FoH	Europe
<i>borderi</i>		14	" "	—	"
<i>duriuscula</i>		14	S. & S. 1940	—	Asia
<i>geniculata</i>		14	Avdulov 1931	Fo	Medit.
<i>paniculata</i>		14	Litardière 1950	—	
<i>polesica</i>		14	Bøcher 1947b	—	E. Europe
<i>pratensis</i>	Meadow Fes.	14 + 0-1B	Myers & H. 1947	Fo	Eur., N. Asia
<i>(elation)</i>		14 + 0-16B	Bosemark 1954		
<i>pumila</i>		14	Litardière 1950	—	Europe
<i>rigida</i>		14	Maude 1939	—	Eur., N. Afr.
<i>supina</i>		14	S. & S. 1940		
<i>tatrae</i>		14	Brandberg 1948		
<i>tenuifolia</i>	Sheep's F.	14	Thomas, M. 1939	Fo	Europe
<i>glauca</i>		14, 28	Brandberg 1948	—	"

# FESTUCA (cont.)

<i>pseudovina</i>		{ 14	Brandberg 1948	—	Europe
		28	Felfoldy 1947a		
<i>altissima</i>	Reed Fescue	{ 14	Litardiére 1950	Fo	Eur., Asia
( <i>sylvatica</i> )		42	Stählin 1929		
<i>paniculata</i>		14, 28, 42	Litardiére 1950		
<i>varia</i>		14, 28, 42	Stählin 1929	—	Eur., Med., A.M
<i>ovina</i>	Sheep's Fescue	{ 14, 21, 28, 42	L. & L. 1942		
		28, 35	Skalinska 1950a		
		56	Church 1929a	FoH	Eurasia
		70	Turesson 1930		
<i>v. vivipara</i>		{ 21, 28, 49	Flovik 1940		
		28, 35	Piotrowicz 1954		
<i>rubra</i> Red Fescue		{ 14, 28, 42, 56, 70	L. & L. 1942		
		28, 42	Brandberg 1948	FoH	N. Temp., Arctic
		42, 46, 53, 64	Juhl 1952b		
<i>altaica</i>		28	S. & S. 1940	—	Siberia
<i>ciliata</i>		28	Avdulov 1928	Fo	Eur., S.W. Asia
<i>extremiorientalis</i>		28	Ono & T. 1953	—	Korea
<i>elmeri</i>		28	Stebbins & L. 1941	Fo	W: U.S.A.
<i>idahoensis</i>	Bluebunch F.	28	" " "	Fo	W: N. America
<i>occidentalis</i>	Western F.	28	" " "	Fo	" "
<i>parvigluma</i>		28	Moriya & K. 1949a	—	Japan
<i>subuliflora</i>		28	Maude 1940	Fo	W: N. America
<i>valesiaca</i>		28	Felfoldy 1947b	—	India
<i>viridula</i>		28	Stebbins, Myers '47	Fo	W: U.S.A.
<i>heterophylla</i>		{ 28	Brandberg 1948	Fo	W. Europe
		42	Stählin 1929		
<i>trachyphylla</i>		28, 42	Bøcher 1947b	—	Europe
<i>arundinacea</i> Tall		28	Stählin 1929		
( <i>elatior</i> ) Fescue		{ 42 + 0-2B	Myers & H. 1947	Fo	"
		70	Lewitzky & K. 1927		
<i>arizonica</i>	Pinegrass	42	Brown 1951	Fo	S.W. U.S.A.
<i>coelestis</i>		42	S. & S. 1940	—	Arctic Eurasia
<i>cryophila</i>		42	Flovik 1940	—	" "
<i>fallax</i>	Chewings F.	42	Maude 1940	Fo	Temp.
<i>gigantea</i>	Giant F.	42	Stählin 1929	Fo	Eur., N. As., Afr
<i>kirilovii</i>		42	S. & S. 1940	—	C. Asia
<i>longifolia</i>	Hard F.	42	Maude 1940	FoH	Europe
<i>sulcata</i>		42	Felfoldy 1947b	—	"
<i>californica</i>		56	Stebbins & L. 1941	Fo	W: N. America
<i>kingii</i>	Spike F.	56	Boyle 1950	Fo	" "
<i>kryloviana</i>		70	S. & S. 1940	Fo	Pamir
<i>maritima</i>		70	Wulff 1937a	Fo	Medit.

# VULPIA (FESTUCA) x = 7

<i>alopecurus</i>		14	Avdulov 1928	Fo	Medit.
<i>bromoides</i>	Squirrel tail F.	14	Stählin 1929	—	Temp.
<i>geniculata</i>		14	Rodrigues 1953	—	W. Medit.
<i>pyramidata</i>		14	Litardiére 1950	—	Europe
<i>myuros</i>	Rat's-tail F.	14, 42	" 1948d	Fo	Temp.
		14	" 1950		
<i>membranacea</i>		{ 42	Maude 1940	Fo	Eur., Medit.
<i>ambigua</i>		28	" "	Fo	S.W. Eur., Med.

POA\*  $x = 7$  (High Polyploids Apomictic)

<i>chaixii</i>	Meadow Grass	14	Avdulov 1931	Fo	Eur., Asia M.
<i>infirmia (exilis)</i>		14	Nannfeldt 1937	Fo	Medit.
<i>remota</i>		14	L. & L. 1942	—	N. Eur., Cauc.
<i>supina</i>		14	Nannfeldt 1937	Fo	Europe
<i>annua</i>	Annual M. G.	28	Litardière 1938	FoH	Cosmop.
<i>trivialis</i>	Rough-st. M. G.	14, 27, 28	Guinochet 1943	Fo	N. Temp.
<i>alpina</i>	Alpine M. G.	{ 14 + 0-8B 28-74	Müntzing 1948 " 1940, 1954	Fo	Arctic, Alpine
<i>bulbosa</i>		{ 14 28, 45 42 + 1B	Guinochet 1943 Akerberg 1942 Hartung 1946	FoH	Temp. O.W.
<i>acroleuca</i>		28	Tateoka 1954	Fo	Japan
<i>badensis</i>		28	Armstrong 1937	Fo	C. Europe
<i>holanderi</i>		28	Myers 1947	Fo	W: N. America
<i>cuspidata</i>		28	W. L. Brown 1939	Fo	E: U.S.A.
<i>douglasii</i>	& 4 spp.	28	Hartung 1946	Fo	California
<i>iridifolia</i>	& 5 spp.	28	Saura 1943, 1948a	Fo	Argentina
<i>maroccana</i>		28	Nannfeldt 1938	Fo	Morocco
<i>rivulorum</i>		28	" "	Fo	"
<i>sibirica</i>		28	S. & S. 1938	Fo	Cauc., Siberia
<i>sylvestris</i>		28	W. L. Brown 1939	Fo	E: U.S.A.
<i>violacea</i>		28	Stählin 1929	Fo	S. Europe
<i>wolfii</i>		28	W. L. Brown 1939	Fo	E. & C: U.S.A.
<i>altaica</i>		28, 42	S. & S. 1940	Fo	Altai
<i>cusickii</i>	Bluegrass	{ 28 42	Stebbins & L. 1941 Hartung 1946	Fo	W: N. America
<i>palustris</i>	Fowl B.G.	28-30, 42	L. & L. 1942	Fo	N. Temp.
<i>nemoralis</i>	Wood	{ 28-38, 42, 43 47-49	" " " " " " " " Bøcher & L. 1950	FoH	Eur., N. Asia
	M.G.	c. 70	Kato 1951		
<i>pratensis</i>	Smooth-stalked	28, 56, 70	Avdulov 1931	FoH	N. Temp.
	M.G.,	49-84	Hartung 1946		
	Kentucky Blue G.	36-123	Nissen 1950		
		38-96	Juhl 1952a		
<i>v. vivipara</i>		42 + 4B	Flovik 1940		
<i>v. eupratensis</i>		50-124	Akerberg 1942		
<i>sterilis</i>		{ 28 42	Stählin 1929 Armstrong 1937	Fo	E. Eur., N. Asia
<i>confinis</i>		42	Hartung 1946	Fo	W: N. America
<i>longifolia</i>		43	" "	—	Caucasus
<i>tibetica</i>		42	S. & S. 1938	Fo	Tibet
<i>laxa</i>		28, 42, 43, 81	L. & L. 1948	Fo	N. Europe
<i>caesia</i>		42	Stählin 1929	Fo	"
<i>arachnifera</i>	Texas Bluegrass	42	W. L. Brown 1939	Fo	S: U.S.A.
		c. 54, 56, c. 63	Hartung 1946		
<i>compressa</i>	Canada	{ 35, 42, 49 45, 49, 56	Akerberg 1942 L. & L. 1948	Fo	North Reg.
	B. G.	{ 42-70 63	" 1942 Bøcher & L. 1950	Fo	N. Temp. & Arct.
<i>glauca</i>		47-64	L. & L. 1948	—	Scandinavia
<i>herjedalica</i>	Skyline B.G.	44+1B-104	Hartung 1946	Fo	W: U.S.A.
<i>scabrella</i>		50+0-1B, 56	" "	Fo	W. & C: N. Amer.
<i>glaucifolia</i>			" "	Fo	

POA (cont)

<i>conferta</i>		56	Armstrong 1937	Fo	N. Europe
<i>nipponica</i>		{ 42	Tateoka 1954	—	Japan
<i>bonariensis</i>		56	Moriya & K. 1949a	—	Argentina
<i>epilis</i>	Skyline B.G.	{ c. 84	Armstrong 1937	Fo	W: N. America
		56	Hartung 1946		
<i>arctica</i>		{ 72-84, c. 100	Flovik 1940	Fo	North Reg.
		{ 38, 56, c. 68, 75	L. & L. 1948		
			Nannfeldt 1940		
<i>ampla</i>	Big Bluegrass	62-100	Hartung 1946	Fo	W: N. America
<i>arida</i>	Plains B.G.	63-103	" "	Fo	C: U.S.A.
<i>fibrata</i>		63, 64	" "	—	California
<i>juncifolia</i>	Alkali B.G.	62-84	" "	Fo	W: N. America
<i>nervosa</i>		62-70	" "	Fo	" "
<i>nevadensis</i>		62-70	" "	Fo	W. & C: U.S.A.
<i>canbyi</i>		72-106	" "	Fo	N. America
<i>abbreviata</i>		76	Flovik 1940	Fo	Arctic
<i>secunda</i>		74-87	Hartung 1946	Fo	W. & C: N. Am.
					Chile
<i>gracillima</i>	Slender B.G.	81-86	" "	Fo	W: N. America
<i>granitica</i>		c. 80	Skalinska 1950a	—	C. Europe
<i>irrigata</i>		82-147	A. Löve 1952	Fo	Arctic
<i>subfastigiata</i>		91-97	Hartung 1946	Fo	Altai

PUCCINELLIA (GLYCERIA)  $x = 7$

<i>lemmoni</i>		14	Church 1949	Fo	W: U.S.A.
<i>parishii</i>		14	" "	Fo	California
<i>vahlana</i>		14	Flovik 1940	Fo	Arctic
		{ 14	Avdulov 1931		
<i>distans</i>		28	Pölya 1948	Fo	Temp.
		42	L. & L. 1948		
<i>fasciculata</i>		28	Rutland 1941	Fo	W. Europe
<i>phryganodes</i>		{ 28	Flovik 1940	Fo	Arctic
		20	L. & L. 1948		
<i>angustata</i>		42	Flovik 1940	Fo	"
<i>retroflexa</i>		42	L. & L. 1948	—	Europe
<i>rupestris</i>		42	Rutland 1941	Fo	W. Eur., Syria
<i>paupercula (pumila)</i>		42, 56	Church 1949	Fo	N: N. America
		{ 42, 56	" "	Fo	W. Eur., N. Am.,
<i>maritima</i>	Sea Poa	63	Maude 1940		Sakhalin
		c. 70	Wulff 1937a		
<i>deschampsoides</i>		56	Böcher & L. 1950	—	—
<i>laurentiana</i>		56	Church 1949	Fo	N.E: N. Amer.
<i>lucida</i>		56	" "	Fo	" "
<i>nutalliana</i>		56	" "	Fo	N. America
<i>simplex</i>		56	" "	Fo	California

SESLERIA  $x = 7$

<i>disticha</i>		14	Reese 1953	—	Europe
<i>autumnalis</i>		28	Avdulov 1928	Fo	S. Eur., Asia M.
<i>caerulea</i>		28	Kattermann 1930	Fo	Europe
<i>varia</i>		28	Ujhelyi & F. 1948	—	"
<i>tenulfolia</i>		42	Avdulov 1928	Fo	S. Europe
<i>sadleriana</i>		56	Ujhelyi & F. 1948	—	Hungary

ARCTOPHILA		x = 7				
<i>fulva</i>	42	Flovik 1940	—		North Reg.	
FLUMINEA (SCOLOCHLOA)		x = 7				
<i>festucea</i>	{ 28	L. & L. 1944b				
	42	Church 1949	Fo		N. Temp.	
PSEUDOBROMUS		x = 7				
<i>africanus</i>	28	de Winter 1951b	—		E: S. Afr., mtns.	
ANTHOCHLOA (NEOSTAPFIA)		x = 7				
<i>colusana</i>	42	Church, Myers 1947	—		California	
VASEYOCHLOA		x = 7				
<i>multinervosa</i>	56	Brown 1950	—		Texas	
PLEUROPOGON		x = 7, 8				
<i>californicus</i>	14, 16	Church, Myers 1947	Fo		California	
<i>davyi</i>	16	" " "	—			
<i>refractus</i>	16, 32	" " "	Fo		W: U.S.A.	
BRACHYPODIUM		x = 7, 9, 15				
<i>serpentinum</i>	14	K. Jones unp.	—		Albania	
<i>flexum</i>	18	P. T. Thomas unp.	—		S. Africa	
<i>sylvaticum</i>	False Brome	18 Ono & T. 1953	—		Eur., S.W. Asia	
<i>phoenicoides</i>		28 Mimeur 1950	—		Medit.	
<i>pinnatum</i>	Heath F. B.	28 L. & L. 1944b	—		Eur., N. Afr., N Asia	
<i>distachyon</i>	{ 28	Mimeur 1950				
	30	Avdulov 1931	—		Medit.	
MUNROA		x = 8				
<i>mendocina</i>	16	Covas 1949b	—		Chile	
MELICA *		x = 9				
<i>altissima</i>	18	Hunter 1934	Fo		S. Eur., N. Asia	
<i>andina</i>	18	Covas 1945	—		S. America	
<i>aristata</i>	& 5 spp.	18 Stebbins & L. 1941	Fo		W: U.S.A.	
<i>bulbosa</i>	Onion grass & 6 spp.	18 Boyle 1945	Fo		W: N. America	
<i>magnolii</i>		18 Lorenzo-Andreu 1951	—		Eur., N. Africa	
<i>minuta</i>		18 Doulat, D. 1951	—		S. Eur., Persia	
<i>nutans</i>	Mountain M.	18 Tateoka 1954	Fo		Eur., N. Asia	
<i>onoeri</i>		18 " " "	—		Japan	
<i>uniflora</i>	Wood Melic	18 L. & L. 1944b	—		Eur., S.W. Asia	
<i>ciliata</i>	18, 30	Doulat, D. 1951	FoH		Eur., N. Afr., S.W. Asia	
<i>amethystina</i>	36	" " "	—		Medit.	
<i>species</i>	36	Melland 1945*	Fo		Chile	
MOLINIA		x = 9				
<i>caerulea</i>	Flying Bent, Purple Melic	{ 18, 36	Mattick, T. 1950			
		36, 90	Guinochet & L. 1950	—	Eur., N. Asia	
MOLINIOPSIS		x = ?				
<i>japonica</i>	50	Tateoka 1954	—		Japan	
DUPONTIA		x = 11				
<i>fisheri</i>	44 + 1-3B	Flovik 1940	Fo		Arctic	
<i>v. psilosantha</i>	88 + 0-1B	" " "				

**ORCUTTIA**  $x = 12, 13, 16$

<i>californica</i>	24	Church, Myers 1947	Fo	California
<i>greenei</i>	24	" " "	—	"
<i>tenuis</i>	26	" " "	—	"
<i>pilosa</i>	32	" " "	—	"

**TRIBE XVII: AVENEAE**

**AIROPSIS**  $x = 4$

<i>tenella</i>	8	Litardière 1948c	—	W. Medit.
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**HOLCUS**  $x = 4, 7$

<i>gayanus</i>	8	Litardière 1949b	—	Spain, Portugal
<i>lanatus</i> Yorkshire Fog	14	" "	H	Eur., Temp. Asia
<i>mollis</i> Creeping Y. F.	14 28 28, 35, 42 49	Stahlin 1929 Litardière 1949b Beddows & Jones '53 Jones unp.	—	Europe

**PERIBALLIA**  $x = 4, 7$

<i>laevis</i>	8	Litardière 1948c	—	Spain, Portugal
<i>involutrata</i>	14	" "	—	Spain

**SCHISMUS**  $x = 6$

<i>calycinus</i>	12	Avdulov 1931	—	Morocco
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**CORYNEPHORUS (AIRA)**  $x = 7$

<i>canescens</i> Grey Hair G.	14	Avdulov 1931	FoH	S. & W. Europe
<i>fasciculatus</i>	14	Gardé 1952b	—	Algeria

**GAUDINIA**  $x = 7$

<i>fragilis</i>	14	Gardé 1952b	—	Medit.
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**SPHENOPHOLIS**  $x = 7$

<i>intermedia</i>	14	Nielsen & H. 1937	Fo	N. America
<i>obtusata</i> Prairie Wedgegrass	14	Brown 1950	Fo	"

**VENTENATA**  $x = 7$

<i>macra</i>	14	Avdulov 1931	—	Asia M., Mesopot.
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**AIRA**  $x = 7$

<i>caryophyllea</i> Silver Hair G.	14	Wulff 1937b	H	Eur., S.W. Asia, Abyssinia
<i>praecox</i> Early Hair G.	14	Hagerup 1939	—	Europe
<i>multiculmis</i>	28	" "	Fo	"

**AVENA**  $x = 7$

<i>brevis</i> Short Oat	14 (28)	Spier 1934 Dorsey 1939	Fo	Europe
<i>bromoides</i>	14	Litardière 1950	—	S.W. Europe
<i>bruhsiana</i>	14	Emme 1930	—	Caspian
<i>clauda</i>	14	" "	—	Greece, Asia M., N. Africa
<i>decora</i>	14	Litardière 1950	—	Europe
<i>erianthus (pilosa)</i>	14	Emme 1930	—	Asia M., Syria, N. Africa
<i>hirtula</i>	14	Shepeleva 1939	—	S. Europe
<i>nudibrevis</i>	14	Stanton 1936	G	"

# AVENA (cont.)

<i>sedensis (montana)</i>	14	Litardière 1950	—	Alps
<i>sempervirens</i>	14	" "	—	S. Europe
<i>ventricosa</i>	14	Emme 1930	Fo	Algeria
<i>wiestii</i> Desert Oat	14	" "	Fo	Egypt, Persia
<i>strigosa</i> Sand Oat	14 (21), 28	Nishiyama 1936	Fo	cult, Medit.
<i>abyssinica</i> Abyss. Oat	28	Spier 1934	GFo	Abyssinia
<i>barbata</i> Slender Wild O.	28	Huskins 1927	Fo	Medit., Persia
<i>vaviloviana</i>	28	Emme 1930	G	cult, Russia
<i>byzantina</i> Red Oat	42	Huskins 1927	G	Eur., N. Asia
<i>chinensis (nuda)</i> Ch. Naked O.	42	" "	G	cult, China
<i>fatua</i> Wild Oat	42	Philp 1933a	GFoTo	S.W. Asia
<i>ludoviciana</i> Wild Red Oat	42	Huskins 1927	G	Medit., S.W. Asia
<i>sterilis</i> Animated Oat	42	Spier 1934	Fo	" "
<i>sativa</i> Oat	42	Emme 1930	FoG	cult, Persia
	(63)	Müntzing 1937c		
<i>planiculmis</i>	c. 126	Reese 1953	—	Eur., N. Asia

# HELICTOTRICHON (AVENA) $x = 7$

<i>hideoi</i>	14	Tateoka 1954	—	Japan
<i>pubescens</i> Downy Oat G.	{ 14, 16	L. & L. 1948 Kattermann, T. 1936	Fo	Eur., N. Asia
<i>pratense</i> Meadow Oat G.	{ 14, 28, 42	Litardière 1950 Maude 1940	Fo	" "
<i>versicolor</i>	60-62	Kattermann, T. 1936	Fo	S. Europe

# ARRHENATHERUM $x = 7$

<i>elatus</i> Tall Oat G.	28	Avdulov 1931	Fo	Eur., N. Afr., W. Asia
<i>v. bulbosum</i> Onion Couch	28	Rutland 1941		

# TRisetum (AVENA) $x = 7, 12?$

<i>sibiricum</i>	14	Avdulov 1931	Fo	O.W. Arctic
<i>flavescens</i> Golden Oat G.	{ 24, 28	" " Nakajima 1930	Fo	N. Temp.
<i>bifidum</i>	28	Moriya & K. 1949a	—	Japan
<i>projectum</i>	28	Stebbins, Myers 1947	Fo	W: N. America
<i>spicatum</i>	28	Flovik 1938	Fo	Arctic & Alpine
<i>canescens</i>	42	Stebbins & L. 1941	Fo	W: N. America
<i>cernuum</i>	42	Myers 1947	Fo	" "

# KOELERIA $x = 7$

<i>glauca</i>	14, 28	Bøcher 1943	Fo	Eur., N. Asia
<i>cristata</i> June Grass	{ 14 + 2B, 28	Tateoka 1954 Stebbins & L. 1941	Fo	Temp. O.W.
<i>gracilis</i> Slender Hair G.	28, 30	Maude 1940	Fo	Eur., N. Asia
<i>vallesiana</i>	42	" "	Fo	W. Eur., N. Afr.
<i>pyramidata (cristata)</i>	70, 84	Bøcher 1943	Fo	S. Europe

# DESCHAMPSIA $x = 7, 13$ (High Polyploids Apomictic)

<i>atropurpurea</i> Mtn. Hair G.	14	L. & L. 1948	Fo	North Reg.
<i>setacea</i> Marsh Hair G.	14	Hagerup 1939	Fo	W. Europe
<i>arctica</i>	28	" "	Fo	N. Amer., Arctic
<i>bottnica</i>	28	" "	Fo	Temp.
<i>flexuosa</i> Wavy H. G.	28	Tateoka 1954	FoH	N. Temp.
<i>pumila</i>	{ 28, 39	Hagerup 1939 Bøcher & L. 1950	Fo	Arctic

DESCHAMPSIA (cont.)

<i>caespitosa</i>	Tufted H. G.	{ 26	Lawrence 1945	Fo	Temp. & Arctic
		28	Hagerup 1939		
<i>danthonioides</i>		26	Myers 1947	Fo	W: N. Am., Chile
<i>elongata</i>	Slender H. G.	26		Fo	N. Temp.
<i>holciformis</i>		26		Fo	W: N. America
<i>alpina</i>	Alpine H. G.	{ 26, 48, 52	L. & L. 1948		
		39, 41, 49	Flovik 1940		
		52	Lawrence 1945	—	Arctic
		56	Hagerup 1939		

DANTHONIA  $x = 6, 7$

$x = 6$

<i>curva</i>		12	de Wet 1954a	—	S. Africa
<i>disticha</i>		12			
<i>auriculata</i>		24			Australia
<i>carphoides</i>		24	Myers 1947		
<i>duttoniana</i>		24	de Wet 1954a		E. Australia
<i>forskalii</i>		24	" "		Egypt
<i>gracilis</i>		24	Calder 1937	Fo	New Zealand
<i>nigricans</i>		24	" "	Fo	
<i>purpurea</i>		24	de Wet 1954a	—	S. Africa "
<i>setifolia</i>		24	Calder 1937	Fo	New Zealand
<i>pilosa</i>		24	Myers 1947		
		48	Calder 1937	Fo	
<i>semiannularis</i>		24	Myers 1947	Fo	
		48	Calder 1937		
<i>australis</i>		36		Fo	
<i>californica</i>	Calif. Oat G.	36	de Wet 1954a	Fo	W. & C: N. Amer.
<i>chilensis</i>		36		Fo	Chile
<i>compressa</i>		36		Fo	E: N. America
<i>crassiuscula</i>		36	Calder 1937	Fo	New Zealand
<i>intermedia</i>		36	de Wet 1954a	Fo	W. & C: N. Amer.
<i>oreophila</i>		36	Calder 1937	Fo	New Zealand
<i>spicata</i>		36	de Wet 1954a	Fo	N. America
<i>stricta</i>		36		—	S. Africa
<i>unispicata</i>		36		Fo	W: N. America
<i>bipartita</i>		48		—	Australia
<i>oresigena</i>		48		—	S. Africa
<i>richardsonii</i>		48		—	S.E. Australia
<i>buchanani</i>	Desert D.	c. 72	Calder 1937	Fo	New Zealand
$x = 7$					
<i>cunninghamii</i>		42	Calder 1937	Fo	New Zealand
<i>ovata</i>		42		Fo	" "
<i>raoulii</i>	Red Tussock	42		Fo	" "

PENTASCHISTIS  $x = 7$

<i>thunbergii</i>		14	de Wet 1954a	—	S. Africa
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SIEGLINGIA  $x = 9$

<i>decumbens</i>	Heath G.	{ 18	L. & L. 1944b		
		36	Scheerer 1940	—	Eur., N. Afr., N
		124	Maude 1940		Asia

**TRIBE XVIII: HORDEAE**

**AEGILOPS**  $x = 7$

(i) <i>mutica</i>	14	Kihara 1954	Fo	Asia Minor
(ii) <i>bicornis</i>	14	" "	Fo	Egypt, Palest.
<i>longissima</i>	14	" "	Fo	N.E. Egypt, Pal.
(incl. <i>sharonensis</i> )				
<i>speltioides</i> Goat Gr.	14	" "	Fo	Asia M., Syria,
(incl. <i>aucheri</i> )				Palestine
(iii) <i>comosa</i> (incl. <i>heldreichii</i> )	14	" "	Fo	Asia M., Greece
<i>uniaristata</i>	14	" "	Fo	Balkans
(iv) <i>caudata</i>	14	" "	Fo	Asia M., Greece
<i>cylindrica</i>	28	" "	Fo	E. Medit.—Afgh.
(v) <i>squarrosa</i>	14	" "	Fo	Transcauc.—Afg.
<i>ventricosa</i>	28	" "	Fo	W. Medit.
<i>crassa</i>	28, 42	" "	Fo	Palest.—Persia
<i>juvenalis</i> ( <i>turcomanica</i> )	42	" "	Fo	Transcasp.
(vi) <i>umbellulata</i>	14	" "	Fo	Asia M., Cauc.
<i>biuncialis</i>	28	" "	Fo	E. Medit.—Casp.
<i>columnaris</i>	28	" "	Fo	Asia Minor
<i>ovata</i>	28	" "	Fo	S. Eur., N. Afr.,
				S.W. Asia
<i>triuncialis</i> (incl. <i>persica</i> )	28	" "	Fo	S. Eur., Medit.—
				Persia
<i>variabilis</i> (incl. <i>kotschy</i> )	28	" "	Fo	E. Medit.—Casp.
<i>triaristata</i>	28, 42	" "	Fo	S. Eur., Medit.—
				Casp.

**HAYNALDIA**  $x = 7$

<i>villosa</i>	14	Kostoff 1936	Fo	Eur., S.W. Asia
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**SECALE**  $x = 7$

<i>ancestrale</i>	14	Kostoff 1937	G	Anatolia
<i>vavilovii</i>	14	" "	G	Armenia
<i>kuprijanovii</i>	14	Nakajima 1954	G	Caucasus
<i>africanum</i> African Rye	14	Gouws 1950	Fo	N. Africa
	{ 14 + 1B	Emme 1928		
<i>fragile</i> Hungarian R.	14 + 1-2B	" "	G	S.E. Eur., N. Asi
<i>montanum</i> Wild Rye	14 + 1-2B	" "	Fo	Medit.—C. Asia
	{ 14 + 0-8B	Müntzing 1943a		
<i>cereale</i> Rye	(7) (21)	" 1937b, c	G	<i>cult</i> , Persia
	(28)	" 1951		

**ELYMUS\***  $x = 7$

<i>caput-medusae</i>	14	Griffie 1927	Fo	Europe
<i>juncus</i>	14	Brown 1948	Fo	Kasakstan
<i>akmolinsensis</i>	28	Litardière 1947	—	N. Asia
<i>angustus</i>	28	" "	—	Siberia
<i>canadensis</i> & 6 spp.	28	Brown 1948, 1950	GFo	N. America
<i>glaucus</i> Blue Wild Rye	28	Stebbins & L. 1941	Fo	W: N. America
<i>mollis</i> Amer. Dune G.	28	Suzuka 1950a	GSb	N.E. Asia, N. Am
<i>sibiricus</i>	28	Avdulov 1928	Fo	N. Asia
<i>villosus</i>	28	Nielsen & H. 1937	Fo	E. & C: U.S.A.
<i>virescens</i>	28	Hartung 1946	Fo	W: N. America
<i>dahuricus</i>	{ 28	Brown 1948	Fo	N. Asia
	42	Avdulov 1928		
<i>triticoideus</i> Alkali Rye G.	28, 42	Stebbins & L. 1941	Fo	W: N. America
<i>cinereus</i> Giant W. R.	28, 56	" " "	Fo	N. America

# ELYMUS (cont.)

<i>giganteus</i>		{ 28	Avdulov 1931	Fo	Siberia
		56	Brown 1948		
<i>erianthus</i>		42	Schnack & C. 1947	—	Chile
<i>patagonicus</i>		42	Hunziker 1955	Fo	S.W. Argentine
<i>arenarius</i>	Sea Lyme G.	56	S. & S. 1938	FoSbSu	Europe

# HORDELYMUS $x = 7$

<i>europaeus</i>	Wood Barley	28	Wulff 1939b	Fo	Eur., Caucasus
	( <i>El. eur.</i> , <i>Hord. sylvaticum</i> )				

# HORDEUM $x = 7$

<i>agriocrithon</i>		14	Aberg 1938	—	Tibet
<i>californicum</i> ( <i>nodosum</i> )		14	Stebbins & L. 1941	—	California
<i>comosum</i>		14	Covas 1949a	—	Chile
<i>chilense</i>		14	Perak 1943	—	"
<i>compressum</i>		14	Covas 1950a	—	Argentine
<i>distichum</i>	Two-Rowed B.	14	Kagawa 1929	G	<i>cult</i>
<i>euclaston</i>		14	Andres 1941	—	N. America
<i>nudiramulosum</i>		14	Ghimpu 1929a	—	<i>cult</i>
<i>pavisi</i>		14	Litardière 1926	—	France
<i>pubiflorum</i>		14	Covas 1952	—	S. S. America
<i>spontaneum</i>	Wild Sprat B.	14	Aase & P. 1926	Fo	S.W. Asia
<i>stebbinsii</i>		14	Covas 1949a		Medit., N. & S. America
<i>stenostachys</i>		14	" 1950a		?
<i>thyrosoideum</i>		14	Ghimpu 1929a		<i>cult</i>
<i>bulbosum</i>		1, 28	Lein 1948	Fo	Medit.
<i>hystrix</i>		{ 14	Covas 1949a	Fo	
		{ 28	Chin 1941		
<i>iubatum</i>	Foxtail B.	{ 14	Tanzi 1925	—	N. & S. Amer.
		{ 28	Aase & P. 1926		
<i>marinum</i>	Sea Barley	{ 14	Wulff 1937a	—	Eur., S.W. Asia
		{ 28	Castro & F. 1946		
<i>murinum</i>	Wall B.		Stolze 1925		Eur., N. Afr., S.W. Asia
			Aase & P. 1926		
<i>pusillum</i>	Wild Barley		Kihara 1924	Fo	N. & S. Amer.
			Stählin 1929		
<i>vulgare</i>	Barley		Kihara 1924	AG	<i>cult</i> Abyssinia
			Karpechenko 1938		
<i>nodosum</i>	Meadow B.	{ 3	Chin 1941	Fo	N. Temp.
		{ 2	Griffiee 1927		
<i>brachyantherum</i> ( <i>nodosum</i> )		3	Covas 1952	Fo	W. N. America
<i>canadense</i>		3	Stählin 1929	—	<i>cult</i>
<i>depressum</i>		3	Covas 1949a	—	W: N. America
<i>gussoneanum</i>		3	Chin 1941	Fo	Sicily
<i>leporinum</i>		3	Covas 1952	—	Eur., N. Amer.
<i>lechleri</i>		2	Covas 1951	—	S. America
<i>hexaploidum</i>				—	Argentine
<i>parodii</i>				—	Patagonia

# TRITICUM $x = 7$

<i>aegilopoides</i>	Wild Small S.W.	14	Darlington 1931c	—	Asia Minor
<i>monococcum</i>	Small Spelt W.	{ 14	" "	G	<i>cult</i> , relic
		{ (7)	Smith 1946		
		{ (28)	Dorsey 1939		

# TRITICUM (cont.)

<i>armeniacum</i>		28	Makushina 1938	—	Armenia
<i>dicoccoides</i>	Wild Emmer	28	Sachs 1953a	—	Syria
<i>dicoccum</i>	Emmer	28	Darlington 1931c	G	cult, relic
<i>durum</i>	Macaroni W.	28	Kihara 1936a	G	cult, N. Africa
		(56)	Dorsey 1936		
<i>turanicum</i>	Khorasan W.	28	Sachs 1953a	G	cult, Persia
( <i>orientale</i> )					
<i>persicum</i> ( <i>carthlicum</i> )		28	" "	G	" "
<i>polonicum</i>	Polish W.	28	" "	G	cult, Medit.
		(56)	Dorsey 1936		
<i>pyramidale</i>	Cone Wheat	28	Lilienfeld & K. '34	G	cult, Egypt
<i>timopheevi</i>		28	Sachs 1953a	G	cult, Persia
<i>turgidum</i>	Rivet W.	28	Darlington 1931c	G	cult, Medit.
<i>compactum</i>	Club W.	42	Sachs 1953b	G	cult, Afghan.
<i>macha</i>		42	" "	G	cult, W. Georgia
<i>sphaerococcum</i>	Indian Dwarf W.	42	" "	G	cult, N.W. India
<i>spelta</i>	Large Spelt W.	42	" "	G	cult, relic
<i>vavilovianum</i>		42	" "	G	cult
<i>vulgare</i>	Bread Wheat	42	" "	G	cult
( <i>aestivum</i> )		(21) (63)	Y. Yamazaki '34, '37		
		(84)	Dorsey 1936		
<i>edwardi</i> ( <i>durum</i> × <i>mon.</i> )		(42)	Zhebrak 1944	G	expt.
<i>soveticum</i> ( <i>durum</i> × <i>timo.</i> )		(56)	" "	G	"
<i>borisovi</i> ( <i>vulgare</i> × <i>timo.</i> )		(70)	" "	G	"

# EREMOPYRON (AGROPYRON) $x = 7$

<i>prostratum</i>		14	Avdulov 1931	Fo	Eur., N. Asia
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# AGROPYRON \* $x = 7$

<i>elongatum</i>	Couch Grass	14	Simonet 1935	Sb	Europe
<i>gmelinii</i>	Wheat Grass	14	Avdulov 1931	Fo	E. Siberia
<i>velutinum</i>		14	Hair unp.	Fo	Australia
<i>cristatum</i>	Crested Wh. G.	14, 28	Hartung 1946	Fo	Eur., N. Asia
<i>spicatum</i>	Blue Bunch W. G.	14, 28	" "	Fo	N. America
<i>caespitosum</i>		14	Stebbins & P. 1953	—	S.W. Asia
<i>borealis</i>		28	Bøcher & L. 1950	—	Russia
<i>caninum</i>	Bearded W. G. & 8 spp.	28	Hartung 1946	Fo	Eur., N. Asia
<i>ciliare</i>		28	Nakajima 1936	—	
<i>donianum</i>		28	Bøcher & L. 1950	—	Scotland
<i>japonicum</i>		28	Nakajima 1936	—	Japan
<i>junceiforme</i>		28	Ostergren 1940	—	W. & N. Europe
<i>latiglume</i>	& 2 spp.	28	Senn <i>et al.</i> 1949	—	N: N. America
<i>mayebararum</i>		28	Moriya & K. 1949a	—	Japan
<i>parishii</i>		28	Stebbins <i>et al.</i> 1946	Fo	California
<i>scabrifolium</i>		28	Covas 1949b	—	Argentina
<i>sibiricum</i>	& 2 spp.	28	Avdulov 1930, 1931	Fo	Eur., N. Asia
<i>turczaninowii</i>		28	Ono & T. 1953	—	Turkestan
<i>violacea</i>		28	Bøcher & L. 1950	—	Scandinavia
<i>junceum</i>	Jointed Couch G.	28	Peto 1930	Sb	Europe
<i>v. mediterraneum</i>		42	Simonet 1935		
<i>repens</i>	Couch Grass	28, 42	Avdulov 1931	FoM	Eurasia
<i>semicostatum</i>		{ 28	Nielsen & H. 1937	Fo	C. Asia
		{ 42	Nakajima 1936		

# AGROPYRON (cont.)

<i>smithii</i>	Bluestem	{ 28, 56	Hartung 1946	Fo	N. America
<i>acutum</i> ( <i>junceiforme</i> × <i>pungens</i> )		42	Stebbins, Myers 1947	Fo	Europe
<i>duvalii</i>		35	Simonet 1934c	Fo	<i>cult.</i> , France
<i>agroelymoides</i>		35, 42	„ 1935	Fo	C. Argentine
<i>enysii</i>		42	Hunziker 1955	Fo	New Zealand
<i>intermedium</i> ( <i>glaucum</i> )		42, 43	Hartung 1946	Fo	Europe
<i>kirkii</i>		42	Hair unp.	Fo	New Zealand
<i>littorale</i>		42	Simonet 1935	Sb	Europe
<i>obtusiusculum</i>		42	Peto 1930	Fo	N.W. Europe
<i>pungens</i>		42	Senn <i>et al.</i> 1949	Sb	Europe
<i>racemiferum</i>		42	Nakajima 1936	—	Japan
<i>trichophorum</i>		42	Hartung 1946	Fo	Europe
<i>scabrum</i>		(sexual) 42	Hair unp.	Fo	Austr., N.Z.
		(apo.) 41-84			
<i>v. tenue</i>		56		Fo	New Zealand
<i>tallonii</i>		49	Simonet 1935	Fo	<i>cult.</i> , France
<i>campestre</i>		56		—	Europe
<i>caespitosum</i>	Couch Grass	70	Peto 1936	Sb	Armenia
<b>HORDEOPYRUM</b> $x = 7$					
<i>rouxii</i>		49	Simonet 1954		W. Medit.
	( <i>H. secalinum</i> × <i>A. littorale</i> )				( <i>nat. hybrid</i> )
<b>SITANION</b> $x = 7$					
<i>hanseni</i>		28	Stebbins & L. 1941	Fo	W: U.S.A.
<i>hystrix</i>	Squirreltail	28	„ „ „	Fo	W. & C: U.S.A., Mex.
<i>jubatum</i>		28	„ „ „	Fo	W: U.S.A.
<b>HYSTRIX</b> $x = 7$					
<i>patula</i>	Bottlebrush	28	Brown 1948	FoH	E: N. America
<i>californica</i>		56	Stebbins, Myers 1947	—	California
<b>AEGILOTRICUM</b> $x = 7$					
<i>Ae. ovata</i> × <i>Tr. turgidum</i>		(46)	Percival 1936	G	<i>expt.</i>
<i>Ae. squarrosa</i> , etc. × <i>Tr. dicoccoides</i> , etc.		(42)	McFadden & S. '46, '47	-	
<b>TRITICALE</b> $x = 7$					
<i>Tr. vulgare</i> × <i>S. cereale</i>		(56)	Müntzing 1939	G	<i>expt.</i>
<b>AGROTTRITICUM</b> $x = 7$					
<i>Tr. vulgare</i> × <i>Agr. glaucum</i> , etc.		(42)	Tzitzin 1933	Fo	<i>expt.</i>
Other intergeneric hybrids			Sears 1948		<i>expt.</i>

## TRIBE XIX STIPEAE

<b>MILIUM</b> $x = 4, 9, 14$					
<i>scabrum</i>		8	Tutin 1950	—	W. Eur., Medit
<i>vernale</i>	Early Millet	18	Avdulov 1928	Fo	W. Asia
<i>effusum</i>	Wood Millet	28	L. & L. 1944b	—	Medit.
					N. Temp.

STIPA \*  $x = 9, 10, 11, 12, 14, 16, 17$

$x = 7, 13$

<i>leucotricha</i>	Texas N. G.	{ 26	Brown 1949	—	S.W: U.S.A.,
		28	Love, Myers 1947	—	Mexico
<i>neesiana</i>		28	Myers 1947	—	S. America
<i>parviflora</i>		28	Lorenzo-Andreu 1951	—	Medit.
<i>pringlei</i>		42	Love, Myers 1947	—	S.W: U.S.A.,
					Mexico

$x = 8, 9, 17$

<i>pinetorum</i>		32	Myers 1947	—	W: U.S.A.
<i>tenuissima</i>		32	Brown 1951	—	Tex.—Mex., Arg
<i>webberi</i>		32	Johnson 1945	—	N. America
<i>robusta</i>	Sleepy Grass	64	Love, Myers 1947	D	S.W: U.S.A.,
					Mexico

<i>pulchra</i>	Nodding N.	{ 64	Love 1954	Fo	California
		66	Nielsen 1939	—	

<i>lepida</i>	Foothill Needlegrass	34	Love 1954	Fo	California
<i>megapotomica</i>		34	Myers 1947	—	Brazil
<i>thurberiana</i>		34	Stebbins & L. 1941	Fo	W: U.S.A.
<i>lemmoni</i>		34, 36	" " "	Fo	"

<i>lettermani</i>		{ 66	" " "	Fo	W. & C: U.S.A.
		68	Love, Myers 1947	—	

<i>speciosa</i>	Desert N.	{ 68	" " "	Fo	Calif., Chile
		60	Stebbins & L. 1941	—	

<i>californica</i>	Cal. Needlegrass	36	" "	Fo	W: U.S.A.
<i>elmeri</i>		36	" "	Fo	W: N. America
<i>mucronata</i>		36	Love, Myers 1947	—	Mexico
<i>occidentalis</i>	Western N.	36	Stebbins & L. 1941	Fo	W: N. America
<i>philippii</i>		36	Myers 1947	—	Chile

$x = 10, 11$

<i>coronata</i>		40	Stebbins & L. 1941	Fo	California
<i>stillmanii</i>		40	Myers 1947	—	"
<i>cernua</i>		70	Love 1954	Fo	"
<i>latiglumis</i>		70	Pohl 1954	Fo	"
<i>brachychaeta</i>		{ 40	Saura 1943	Fo	Argentina
		44	Parodi 1946	—	
		44-46	Myers 1947	—	

<i>capillata</i>	& 6 spp.	44	Avdulov 1931	Fo	S. Eur., N. Asia
<i>columbiana</i>		44	Nielsen 1939	Fo	W: N. America
<i>comechingoniana</i>		44	Saura 1948a	—	
<i>gynerioides</i>		44	Covas 1945	—	Mexico
<i>ichu</i>		44	Saura 1948a	—	"
<i>junceae</i>		44	Love, Myers 1947	—	Medit.
<i>neomexicana</i>		44	" " "	Fo	S.W: U.S.A.
<i>plumosa</i>		44	Covas & B. 1945	—	Chile

<i>comata</i>	Needle & Thread G.	{ 44-46	Stebbins & L. 1941	Fo	N. America
		46	Love, Myers 1947	—	
<i>humilis</i>		{ 42-44	Stebbins, Myers 1947	—	S. America
		66	Covas & B. 1945	—	
<i>neaei</i>		66	" "	—	Patagonia
<i>speciosa</i>		66	" "	Fo	Calif., Chile

STIPA (cont.)

$x = 12, 13$

<i>sibirica</i>	Sleepy Grass	24	Avdulov 1928	Fo	N. Asia, Himal.
<i>extremiorientalis</i>		24	Ono & T. 1953	Fo	Japan
<i>eminens</i>		46	Love, Myers 1947	Fo	Tex., Ariz., Mex.
<i>spartea</i>	Porcupine G.	46	" " "	Fo	N. America
<i>splendens</i>		48	" " "	—	Siberia
<i>viridula</i>		82	Johnson & R. 1943	Fo	C: U.S.A.

BRACHYELYTRUM  $x = 11$

<i>erectum</i>		22	Brown 1950	—	E: N. America
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PIPTOCHAETIUM \*  $x = 11$

<i>bicolor</i>		22	Covas & B. 1945	—	Chile
<i>lasianthum</i>	& 3 spp.	22	Parodi 1946	—	Argentina
<i>napostaense</i>		22	Covas & B. 1945	—	"
<i>fimbriatum</i>		44	Brown 1951	Fo	S.W: U.S.A.

ORYZOPSIS  $x = 11, 12, x_2 = 23$

<i>kingii</i>		22	Johnson 1945	Fo	California
<i>micrantha</i>		22	" "	Fo	W. & C: N. Amer
<i>pungens</i>		22	" "	—	N. America
<i>holciformis</i>		24	" "	—	Persia
<i>millacea</i>		24	Avdulov 1928	Fo	Medit.
<i>paradoxa</i>		24	Litardière 1950	Fo	Eur., Cauc.
<i>virescens</i>		24	Avdulov 1928	Fo	" "
<i>hymenoides</i>	Indian Rice G.	48	Johnson 1945	FoG	N. America
<i>asperifolia</i>		46	" "	—	
<i>racemosa</i>		46	" "	—	E. & C: N. Amer

STIPORYZOPSIS  $x = (24 + 41)$

<i>caduca</i>		65	Johnson & R. 1943	Fo	<i>nat. hybrid</i>
( <i>O. hym.</i> $\times$ <i>S. vir.</i> )					
Mandan Rice Grass		130	Nielsen & R. 1952	Fo	" "
( <i>S. caduca</i> 4x)					

PHAENOSPERMA  $x = 12$

<i>globosa</i>		24	Avdulov 1931	Fo?	China
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URACHNE (NASELLA)  $x = 19$

<i>trichotoma</i>		38	Avdulov 1928	Fo	Temp. S. Amer.
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TRIBE XX: ORYZEAE

CHIKUSICHLOA  $x = 12$

<i>aquatica</i>		24	Hirayoshi 1937	Fo	Japan
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HYDROCHLOA  $x = 12$

<i>carolinensis</i>		24	Brown 1948	Fo	S.E: U.S.A.
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HYGRORYZA  $x = 12$

<i>aristata</i>		24	Hirayoshi 1937	Fo	Trop. Asia
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POTAMOPHILA  $x = 12$

<i>prehensilis</i>		24	Winter 1951a		Australia
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# ZIZANIOPSIS $x = 12$

*miliacea* Southern Wild Rice 24 Brown 1948 — S.E. U.S.A., W.I.

# EHRHARTA $x = 12$

*erecta* { 24 Parthasarathy 1939 Fo S. Africa  
48 Nakamori 1933  
*calycina* Veldt Grass { 24 (25-28) Love 1948 Fo  
48 Parthasarathy 1939 Fo  
*longiflora* 48 Fo

# ORYZA $x = 12$

*australiensis* 24 Sampath & R. 1949 Queensland  
*barthii* Afr. Per. W.R. { 24 Heyn 1936 FoG Trop. Africa  
36 P. T. Thomas unp.  
24 Krishnaswamy *et al.* '54 Sudan  
*brachyantha* 24  
*breviligulata* 24 " India, Mal.  
*granulata* 24 Formosa  
*formosana* 24 Hara 1942  
*glaberrima* 24 Ramanujam 1938 FoG Trop. Africa  
*longistaminata* 24  
*meyeriana* 24 Heyn "1936, E.K.J.\* Fo " Trop. Asia  
*officinalis* Wild Rice 24 Nandi 1936 Fo  
*perennis* Cuban Rice 24 Gotoh & O. 1933 G Trop. America  
*stapfi* 24 Sampath & R. 1949 G Trop. Africa  
*subulata* 24 Saura 1948a — S. America  
*latifolia* { 24 Heyn 1936 FoG N. Amer., W.I.  
(48) Gotoh & O. 1933  
*sativa* Rice { 24 Avdulov 1931 AFoG *cult.*, India  
(36, 48) Ichijima 1934  
*coarctata* Wild Sind R. 48 Parthasarathy 1938 Fo Sind, Bengal, Bur.  
*eichingeri* 48 Pathak 1940 Fo Trop. E. Africa  
*minuta* 48 Nandi 1936 G Philippines  
*sylvestris* 48 Pathak 1940 — Trop. Africa

# MICROLAENA $x = 12$

*stipoides* 48 Parthasarathy 1939 Fo Austr., N.Z.

# LEERSIA $x = 12$

*hexandra* Bareet G. 48 Brown 1948 Fo Tropics  
*lenticularis* Catchfly G. 48 " 1950 — E: U.S.A.  
*monandra* 48 " " — S.E. U.S.A., W.I.  
*virginica* White grass 48 " 1948 — E. & C: N. Amer.  
*oryzoides* Cut G. 48 Tateoka 1954 Fo N. Temp.  
*v. japonica* 60 Hirayoshi 1937 Fo Japan  
*japonica* 96 " "

# ZIZANIA $x = 15$

*aquatica* Annual Wild R. 30 Brown 1948 G E. & C: U.S.A.  
*latifolia* Manchurian W.R. { 30 Ramanujam 1938 GV N. China  
34? Hirayoshi 1937  
*texana* Texas W.R. 30 Brown 1950 Texas

**TRIBE XXI: ARUNDINEAE**

**PHRAGMITES**  $x = 12$

<i>communis</i>	{ 36 Tischler 1942			
	48, c. 96 Avdulov 1931	DTToV	Cosmop.	
	48 Saura 1948a			
as <i>karka</i>	36 Ramanathan 1950			
<i>japonica</i>	48 Tateoka 1954	—	Japan	

**CORTADERIA (GYNERIUM)**  $x = 12$

<i>selloana</i> Pampas Gr.	{ 72 + 1B Avdulov 1931	HT	S. America	
( <i>argentea</i> )	76 Hunter 1934			

**ARUNDO**  $x = 12?$

<i>donax</i>	Spanish Reed	110	Hunter 1934	HT	Medit.—Japan
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**HAKONECHLOA**  $x = 12?$

<i>macra</i>	50	M. & S. 1935	H	Japan	
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**AMPELODESMOS**  $x = 12$

<i>mauritanicus</i>	96	Myers 1947	Fo	W. Medit.	
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**TRIBE XXII: CENTOTHLCEAE**

**CENTOTHECA**  $x = 12$

<i>lappacea</i>	24	Avdulov 1931	Fo	O.W. Tropics	
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**UNIOLA**  $x = 12$

<i>laxa</i>	24	Brown 1950		E: U.S.A.	
<i>sessiliflora</i>	24	" "		S.E: U.S.A.	
<i>latifolia</i>	48		H	E: U.S.A.	

**TRIBE XXIII: BAMBUSEAE**

**ARUNDINARIA (SASAEELLA)**  $x = 12$

<i>iwatekensis</i>	48	Uchikawa 1935	HTW	Japan	
<i>simonii</i>	48	Parodi 1946	—	China	

**CHIMONOBAMBUSA**  $x = 12$

<i>marmorea</i>	48	Uchikawa 1933	HTW	China	
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**INDOCALAMUS**  $x = 12$

<i>wightianus</i>	Nilgiri Bamboo	48	E.K.J.*	HTW	India
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**PHYLLOSTACHYS**  $x = 12$

<i>aurea</i>	Golden B. & 4 spp.	48	Uchikawa 1935	HW	China, Japan
<i>striata</i>		48	" 1943	—	Japan
<i>maritacea</i>		48			
<i>flexuosa</i>		{ c. 72 Avdulov 1928			
		54? Hunter 1934			China

**PLEIOBLASTUS (ARUNDINARIA)**  $x = 12$

<i>fortunei</i>	48	Hunter 1934	H	Japan	
<i>gramineus</i>	48	Uchikawa 1935	—	"	
<i>hindsii</i>	48	" "	H	Hong Kong	
<i>higoensis</i>	48	" 1943		Japan	
<i>communis</i>	48	" "			

<b>PLEIOBLASTUS (ARUNDINARIA) (cont.)</b>					
<i>chino (maximowiczii)</i>	48	Tateoka 1954	H	China	
<i>simonii</i> Silverstripe B.	48	Uchikawa 1933	HW	"	
<i>pygmaeus</i>	54?	Hunter 1934	H	Japan	
<b>PSEUDOSASA <math>x = 12</math></b>					
<i>japonica</i> Arrow B.	48	Uchikawa '35, E.K.J.*	TW	Japan	
<b>SASA <math>x = 12</math></b>					
sp. (3x)	36	Uchikawa 1943			
<i>kozasa</i>	48	Yamaura 1933	HW	Japan	
<i>kurilensis</i>	48	" "	HW	"	
<i>paniculata</i>	48	" "	HW	"	
<b>SASAMORPHA <math>x = 12</math></b>					
<i>purpurascens (borealis)</i>	48	Tateoka 1954	HW	Japan	
<b>SEMIARUNDINARIA <math>x = 12</math></b>					
<i>yashadake</i>	48	Uchikawa 1935	W	Japan	
<b>SINOBAMBUSA <math>x = 12</math></b>					
<i>tootsik</i>	48	Uchikawa 1933	W	Japan	
<b>TETRAGONOCALAMUS (CHIMONOBAMBUSA) <math>x = 12</math></b>					
<i>angulatus</i>	48	Uchikawa 1935	HTW	China	
<b>BAMBUSA <math>x = 12</math></b>					
<i>bambos</i> Common B.	{	72 Janaki Ammal 1938	FoGHW	E. Indies	
<i>(arundinacea)</i>		70 Parthasarathy 1946			
<i>floribunda</i>		72 Uchikawa 1935			
<i>multiplex</i> Henge B.	72	" "	W	Java	
<i>as nana</i>	72	" "	FoHW	Trop. Asia	
<i>polymorpha</i>	72	Yamaura 1933	H	Japan	
<i>vulgaris</i> Feather B.	72	E.K.J.*	W	Burma	
	72	"	FoHW	Trop. Asia	
<b>DENDROCALAMUS <math>x = 12</math></b>					
<i>giganteus</i> Giant Bamboo	72	E.K.J.*	HToW	Burma	
<i>longispathus</i>	72		W	"	
<i>strictus</i> Male B.	{	72 Richharia & K. '40,	HToW	India, Java	
		70 Parthasarathy 1946			
<i>brandisii</i>	72 + 2B	E.K.J.*	W	Burma	
<b>OCHLANDRA <math>x = 12?</math></b>					
<i>scriptoria</i>	c. 72	E.K.J.*	TTToW	India	
<i>travancoria</i>	c. 72	"	TTToW	S. India	